



AUDIT & BUSINESS COMMITTEE

September 28, 2023

Roaden University Center, Room 282

AGENDA

- I. Call to Order
- II. Approval of Minutes
- III. Financial Update
- IV. Disclosed Projects
- V. Performance Evaluation & Performance-Based Compensation Analysis
- VI. Tenure Upon Appointment Recommendations
- VII. Adjournment of Open Session and Call to Order of Non-Public Executive Session to Discuss Audits, Investigations, Litigation, and Matters Deemed Not Subject to Public Inspection Pursuant to T.C.A. § 4-35-108(b)(1)-(3)
- VIII. Adjournment



AUDIT & BUSINESS COMMITTEE

June 22, 2023

Roaden University Center, Room 282

MINUTES

Meeting was streamed live via link found on this web page:

<https://www.tntech.edu/board/meetings/>

AGENDA ITEM 1 – Call to Order

The Tennessee Tech Board of Trustees Audit & Business Committee met on June 22, 2023, in Roaden University Center Room 282. Chair Johnny Stites called the meeting to order at 10:04 a.m.

Chair Stites asked Mr. Lee Wray, Secretary, to call the roll. The following members were present:

- Johnny Stites
- Fred Lowery
- Thomas Lynn

Other board members also in attendance were Tom Jones, Rhedona Rose, Barry Wilmore, Trudy Harper, and Savannah Griffin. Dan Allcott participated virtually. A quorum was physically present. Tennessee Tech faculty, staff and members of the public were also in attendance.

AGENDA ITEM 2 – Approval of Minutes

Chair Stites asked for approval of the minutes of the March 9, 2023, Audit & Business Committee meeting. Chair Stites asked if there were questions or comments regarding the minutes. There being none, Mr. Lowery moved to recommend approval of the March 9, 2023, Audit & Business Committee minutes. Mr. Lynn seconded the motion. Mr. Wray called a roll call vote. The motion carried unanimously.

AGENDA ITEM 3 – Maintenance and Mandatory Fees

Dr. Stinson presented information to recommend a 2.93% maintenance and mandatory fee increase with 2.92% maintenance increase and 2.96% mandatory fee increase. Mandatory factors to consider under T.C.A. § 49-7-1603 are level of state support, total cost of attendance and efforts to mitigate the financial effects on students. Additional factors to consider are THEC binding range, comparison to peer institutions and other LGIs, and Higher Education Price Index. The mandatory fee increase to the program service fee component will be used to help fund development of facilities. A tuition and fee comparison of other LGIs was provided.

Mr. Lynn moved to send the recommended FY2023-24 maintenance and mandatory fees to the Board for approval and to place it on the Board's regular agenda. Mr. Lowery seconded the motion. Mr. Wray took a roll call vote. The motion carried unanimously.

AGENDA ITEM 4 – Non-Mandatory Fees

Dr. Stinson presented a fee proposal to increase the Craft Center housing rates for single occupancy by \$350 per semester and double occupancy \$325 per semester. The increase will help provide resources for maintenance of housing units, build reserves to fund major renovations and upgrades to units and bring rates for housing at the Craft Center into closer alignment with on-campus rates. Dr. Stinson advised that non-mandatory fees are not subject to THEC binding rates.

Mr. Lowery moved to send the recommended Non-Mandatory fee for Craft Center Housing effective Fall 2023 to the Board for approval and to place it on the Board's regular agenda. Mr. Lynn seconded the motion. Mr. Wray took a roll call vote. The motion carried unanimously.

AGENDA ITEM 5 – FY2022-23 Estimated and FY2023-24 Proposed Budget

Dr. Stinson presented information on the changes in E & G revenues, functional expenses, and natural expenses. (Attachment A).

Mr. Lynn moved to send the FY2022-23 Estimated and FY2023-24 Proposed budgets and organizational chart to the Board for approval and place it on the Board's regular agenda. Mr. Lowery seconded the motion. Mr. Wray took a roll call vote. The motion carried unanimously.

AGENDA ITEM 6 – Disclosed Projects FY2023-24

Dr. Stinson presented two campus funded projects. The projects included the Student Event Center and J.J. Oakley Residence Hall and Innovation Center.

Mr. Lowery moved to send the FY2023-24 disclosed projects for the Student Event Center and J.J. Oakley Residence Hall and Innovation Center to the Board for approval and to place it on the Board's regular agenda. Mr. Lynn seconded the motion. Mr. Wray took a roll call vote. The motion carried unanimously.

AGENDA ITEM 7 – Capital Budget FY2024-25

Dr. Stinson presented the FY2024-25 Capital Budget requests. The capital outlay request is for an academic classroom building which includes demolition of Matthews- Daniel Hall and Crawford Hall and construct a new academic classroom building on the same site to support College of Education, College of Arts & Sciences, administrative offices for Communications & Marketing and Research and Development. The Capital Maintenance projects requests for state funding in order of priority is Bryan Fine Arts Auditorium upgrades, roof replacements for Bell Hall and Ray Morris Hall, air handler replacement for Henderson Hall and T.J. Farr, utility infrastructure upgrades phase 1.1, utility infrastructure upgrades phase 1.2, power monitoring system, Bryan Fine Arts building exterior repairs, and University Services building mechanical upgrades.

Mr. Lynn moved to send the FY2024-25 Capital Budget requests to the Board for approval and to place it on the Board's regular agenda. Mr. Lowery seconded the motion. Mr. Wray took a roll call vote. The motion carried unanimously.

AGENDA ITEM 8 – Emeritus President Contract

Dr. Stinson stated that Dr. Robert Bell had a President Emeritus Contract with the university and TN law required the contract to be reviewed annually. A report for Dr. Bell and what he accomplished the past year along with a copy of his agreement was provided in Diligent.

Mr. Lynn moved to send the 2023-24 emeritus contract for Dr. Bell to the Board for approval and to place it on the Board's consent agenda. Mr. Lowery seconded the motion. Mr. Wray took a roll call vote. The motion carried unanimously.

AGENDA ITEM 9 – Tech Farm Operating Agreement

Dr. Stinson presented the operating agreement to be effective July 1, 2023, between Tech Farm LLC and the university. After discussions between the University, Tech Farms LLC and Tennessee Tech University Foundation, the University desires to expand its use of the Farms for educational, agricultural, research, and scientific purposes and has requested that it assume from Tech Farms all responsibility for the daily operations, management, maintenance, and upkeep of the Farms.

Under this agreement, Tech Farms will continue to own all the Farm real property and improvements and will also continue to own all timber rights and all mineral rights. It is the intention of Tech Farms LLC to set aside any proceeds from the sale of timber and the development of any mineral rights in a quasi-endowment in the TTU Foundation for the maintenance and upkeep of the improvements on the Farms' properties.

Ownership of all farm machinery, all equipment and all non-attached improvements will be transferred from Tech Farms LLC to the University along with all cattle and other livestock on the Farms. Tennessee Tech will be responsible for all staffing and expenses of all operations which it undertakes on the Farms. Tennessee Tech will not pay any rental or lease payments to Tech Farms LLC.

Chair Stites expressed his concern that TTU would be spending money on maintenance on property it does not own and asked to clarify language in Item C on the agreement (Attachment B). Mr. Jones pointed out that the TTU Foundation was the sole member of Tech Farms LLC. Dr. Stinson advised on page 3 item 10 could address Mr. Stites concerns. Mr. Stites still thought it was conflicting and needs to be clarified. Trudy Harper suggested to delegate to Dr. Oldham and Dr. Stinson to work with the lawyer on clarifying the agreement to make clear and to vote with that expectation. Dr. Oldham stated the suggestion would be to make Item C exception clear that it does not include permanent structures.

Mr. Lowery moved to send the Tech Farm operating agreement with clarification as discussed to the Board for approval and to place it on the Board's consent agenda. Mr. Lynn seconded the motion. Mr. Wray took a roll call vote. The motion carried unanimously.

AGENDA ITEM 10 – Faculty Promotions

Dr. Bruce advised that thirty-four faculty members were awarded promotion by the President beginning August 2023. This accounts for about seven percent of faculty. This includes six from Lecturer to Senior Lecturer, 15 from Assistant to Associate Professor and 13 from Associate to Professor. Details of the promotions were provided in Diligent.

This was an informational item therefore no action was required.

AGENDA ITEM 11 – Tenure Recommendations

Dr. Bruce advised the President's recommendation for tenure beginning August 2023 included 14 faculty members. If the recommendations are approved by the Board the percentage of tenured faculty will be 54%. Details of the candidates were provided in Diligent.

Mr. Lynn moved to send the tenure recommendations to the Board for approval and to place it

on the Board's consent agenda. Mr. Lowery seconded. Mr. Wray took a roll call vote. The motion carried unanimously.

AGENDA ITEM 12 – Internal Audit Quality Assessment Review

Deanna Metts presented the review of Internal Audit's Quality Assessment Review and external validation as required by Institute of Internal Audit Standards. The report was provided in Diligent.

There was no action required on this item.

AGENDA ITEM 13 – Adjournment of Open Session & Call to Order on Non-Public Executive Session

There being no further business, the meeting adjourned at 11:41 a.m. After a short break, the Non-Public Executive Session began at 11:48 a.m. Trustees and Administration were present for the meeting.

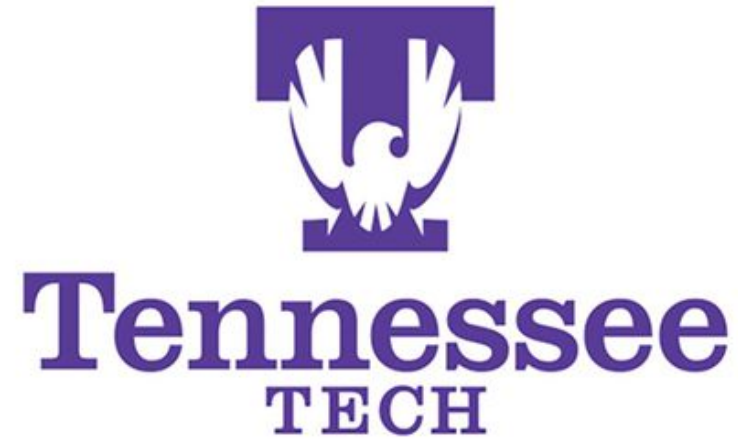
AGENDA ITEM 14 – Adjournment

There being no further business, the Non-Public Executive Session adjourned at 12:23 p.m.

Approved,

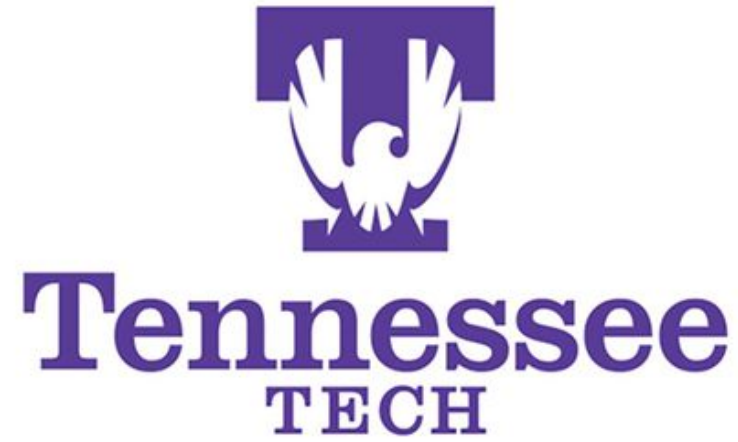
Lee Wray, Secretary

Attachment A



FY2022-23 Estimated & FY2023-24 Proposed Budget





FY2022-23 Estimated Budget



Changes in E&G Revenues

	October Revised Budget BOT Approved December 2022 FY2022-23	Current Estimate Presented for Approval June 2023 FY2022-23	Difference
Tuition & Fees	\$100,544,000	\$103,087,100	\$2,543,100
State Approp	\$79,920,600	\$79,920,600	\$0
Other	\$12,949,300	\$16,356,000	\$3,406,700
Total E&G Revenues	\$193,413,900	\$199,363,700	\$5,949,800



Revised FY23 vs. Current Estimate FY23 Reconciliation of Changes in E&G Revenues

- Tuition and Fees
 - Conservative estimate in enrollment driven maintenance (tuition) and fees \$2,293,278
- Other
 - Increase in interest income revenue \$2,200,000
 - Increase in Athletics income \$511,650
 - Increase non-mandatory fees \$250,000
 - Indirect Cost increase \$175,000
 - Career Services income \$118,000
 - Salvage income \$70,000

Changes in E&G Functional Expenses

	October Revised Budget BOT Approved December 2022 FY2022-23	Current Estimate Presented for Approval June 2023 FY2022-23	Difference
Instruction	\$87,781,500	\$87,655,700	(\$125,800)
Research	\$6,972,900	\$7,314,000	\$341,100
Public Service	\$3,297,200	\$3,113,100	(\$184,100)
Academic Supp.	\$17,641,500	\$17,929,600	\$288,100
Student Serv.	\$23,825,400	\$24,680,800	\$855,400
Institutional Supp.	\$18,128,200	\$18,404,000	\$275,800
Maint & Oper.	\$18,274,500	\$17,750,900	(\$523,600)
Scholarship	\$19,154,100	\$19,146,600	(\$7,500)
Total E&G Functional Expenses	\$195,075,300	\$195,994,700	\$919,400



Revised FY23 vs. Current Estimate FY23 Reconciliation of Changes in E&G Functional Expenses

- Instruction
 - Reallocation of university-wide managed benefits (\$125,000)
- Research
 - Rural Reimagined transferred to research \$144,076
 - Reallocation of university-wide managed benefits \$125,000
- Public Service
 - Rural Reimagined transferred to research (\$144,076)
- Academic Support
 - TAF increase due to conservative fall budget \$109,750
 - Reallocate portion of College online fee to Provost for course development \$31,942
 - IT ERP Project Manager position \$125,271
- Student Services
 - Athletics – revenue adjustment \$514,653
 - RUC Coordinator position - \$55,906
 - International Education - \$79,822
 - Disability Services \$32,000
 - Police adjustments \$63,923
- Inst. Support/Maint. & Operation
 - Mercer Comp Study \$300,000
 - Property insurance savings (\$1,000,000)
 - Utilities increase \$175,000
 - Crossville TAP \$200,000
 - Market adjustments \$117,434



Changes in E&G Natural Expenses

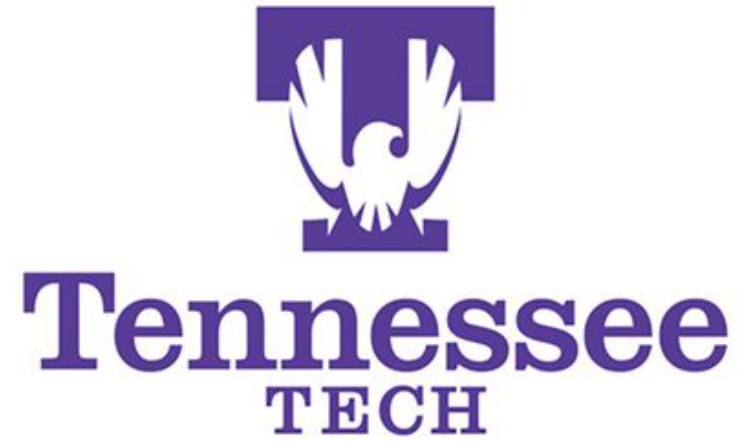
	October Revised Budget BOT Approved December 2023 FY2022-23	Current Estimate Presented for Approval June 2023 FY2022-23	Difference
Salary and Wages	\$87,736,836	\$86,423,769	(\$1,313,067)
Fringe Benefits	\$33,379,952	\$33,901,020	\$521,068
Travel	\$2,075,850	\$2,715,462	\$639,612
Operating & Utilities	\$51,385,055	\$52,190,073	\$805,018
Scholarships & Fellowships	\$19,682,220	\$19,713,840	\$31,620
Capital	\$815,104	\$1,050,657	\$235,553
Total E&G Natural Expenses	\$195,075,017	\$195,994,821	\$919,804



Revised FY23 vs. Current Estimate FY23 Reconciliation of Changes in E&G Natural Expenses

- Salary and Wages
 - Lapse Strategic Investment Pool (\$2,016,821)
 - Chair and Department stipends \$289,000
 - IT Project Manager, EHS Coordinators, International Education \$262,000
 - Market adjustments – Police & Facilities \$151,405
- Benefits
 - New positions - \$148,150
 - Health Services \$55,200
 - Funds transferred to cover GA fee waivers \$318,000
- Travel
 - Units transferred dollars from operating or temporary wages to cover travel expenditures \$639,00
- Operating & Utilities
 - Lapse invested back at College/VP level \$1,101,947
 - Transfer funds for positions (\$213,371)
- Scholarships
 - Funds added to cover state fee waiver mandates \$31,620
- Capital
 - Funds transferred to cover infrastructure \$235,553





FY2023-24 Proposed Budget



Changes in Permanent E&G Revenues – FY23 to FY24

	July Proposed Budget BOT Approved June 2022 FY2022-23	July Proposed Budget Presented for Approval June 2023 FY2023-24	Difference
Tuition & Fees	\$100,785,900	\$105,062,800	\$4,276,900
State Appropriations	\$73,823,600	\$80,803,800	\$6,980,200
Other	12,798,400	13,136,800	\$338,400
Total E&G Revenues	\$187,407,900	\$199,003,400	\$11,595,500
State Appropriations – One Time (Special Initiatives)	\$5,040,000	\$1,350,000	(\$3,690,000)
Adjusted Total E&G Revenues	\$192,447,900	\$200,353,400	\$7,905,500



Proposed FY23 vs. Proposed FY24 Reconciliation of Changes in Permanent E&G Revenues

- Tuition and Fees
 - Maintenance and Out-of-State increase adjusted at Current Estimate FY23 \$1,855,000 from conservative Revised Budget
 - Fee increase adjusted to actuals at Current Estimate FY23 \$335,400 from conservative Revised Budget
 - Maintenance and Out-of-State increase at Proposed FY24 based on estimated Fall 2023 student enrollment \$1,873,000
 - Fee increase at Proposed FY24 based on estimated Fall 2023 student enrollment \$213,500
- State Appropriations
 - Base adjustment – Outcomes Formula \$251,900
 - Outcomes Funding & Inflationary Cost \$2,285,100
 - Formula Salary Pool – Partial 5% \$2,920,000
 - CEROC - \$1,000,000
 - Group Health Adjustments \$287,600
 - UAAL (Unfunded Actuarial Accrual liability) Allocation, OPEB, TCRS Rate Adjustment, Risk Management Premiums \$235,600
- Other
 - Indirect Cost \$150,000
 - Parking Permits \$162,250
 - Departmental revenues (band camp, workshops, application fees, etc.) \$26,150
- State Appropriations –One Time (Special Initiatives)
 - Water Center \$150,000 – New in FY24
 - Appalachian Craft Center (\$2,840,000) – FY23 not repeated in FY24
 - CEROC (\$1,000,000) – shift to permanent state appropriations in FY24

Changes in Permanent E&G Functional Expenses – FY23 to FY24

	July Proposed Budget BOT Approved June 2022 FY2022-23	July Proposed Budget Presented for Approval June 2023 FY2023-24	Difference
Instruction	\$78,441,400	\$81,436,000	\$2,994,600
Research	\$2,750,800	\$3,162,900	\$412,100
Public Service	\$2,056,600	\$2,056,400	(\$200)
Academic Supp.	\$14,308,000	\$15,728,000	\$1,420,000
Student Serv.	\$22,823,600	\$24,140,900	\$1,317,300
Institutional Supp.	\$19,915,000	\$20,367,400	\$452,400
Maint & Oper.	\$16,319,900	\$19,049,300	\$2,729,400
Scholarship	\$17,536,300	\$20,628,000	\$3,091,700
Total E&G Expenses	\$174,151,600	\$186,568,900	\$12,417,300
State Appropriations – One Time (Special Initiatives)	\$8,540,000	\$1,350,000	(\$7,190,000)
Adjusted Total E&G Expenses	\$182,691,600	\$187,918,900	\$5,227,300



Proposed FY23 vs. Proposed FY24 Reconciliation of Changes in E&G Functional Expenses

- Instruction
 - FY24-Salary Pool & Benefits - \$2,620,163
 - FY24-Faculty Promotions \$250,000
 - FY24-Lab Science contracts \$350,000
 - SAF & Online Fee adjustments \$295,108
 - Chair stipends \$289,000
 - Benefit reallocation-university wide (\$800,000)
- Research
 - FY24-Salary Pool & Benefits - \$33,131
 - FY23-Office of Research funding shift (\$46,077)
 - CEROC permanent funding - \$480,000
 - Benefit reallocation-university wide (\$55,000)
- Public Service
 - FY24-Salary Pool & Benefits - \$29,361
 - Benefit reallocation-university wide (\$30,000)
- Academic Support
 - FY24-Salary Pool & Benefits - \$614,648
 - ITS maintenance contracts \$300,000
 - IT ERP Project Manager position \$125,271
 - Library \$150,000
 - FY23-Office of Research funding shift \$46,077
 - Online Fee adjustments \$187,920
- Student Services
 - FY24-Salary Pool & Benefits - \$701,557
 - Athletics inflationary cost \$224,425
 - Athletics positions \$189,000
 - RUC Coordinator position - \$55,906
 - International Education position & reclass - \$79,822
 - Disability Services \$30,000
 - CourseDog software \$100,113
 - Benefit reallocation-university wide (\$60,000)
- Institutional Support
 - FY24-Salary Pool & Benefits - \$1,164,290
 - FY24-State Appropriation Group Health \$352,400
 - Crossville TAP Property \$552,000
 - New positions & adjustments - \$186,310 (HR Specialist, 2- EHS Coordinators)
 - Benefit reallocation-university wide (\$1,800,000)
- Maintenance & Plant
 - FY24-Salary Pool & Benefits - \$307,368
 - FY24-Utilities-anticipated ACME online \$447,400
 - Police & Facilities positions & critical adjustments \$343,629
 - FY23-Loss of TVA reimbursement \$260,000
 - FY23-Inflationary cost increase of utilities \$1,736,069
 - Utilities reallocated to Auxiliary due to increase (\$330,000)
- Scholarships
 - Presidential Scholars - 1st year FY23 - \$1,240,400
 - Athletic scholarships FY23 - \$170,480
 - Presidential Scholars – 2nd year FY24 - \$1,481,400
 - TCA mandated scholarships \$200,000
- State Appropriations – One Time (Special Initiatives)
 - Water Center \$150,000
 - Appalachian Craft Center (\$2,840,000)
 - CEROC (\$1,000,000) – shift to permanent state appropriations
 - Crossville TAP (\$3,500,000)-shift to permanent state appropriations



Changes in Permanent E&G Natural Expenses – FY23 to FY24

	July Proposed Budget BOT Approved June 2022 FY2022-23	July Proposed Budget Presented for Approval June 2023 FY2023-24	Difference
Salary and Wages	\$85,226,460	\$91,107,638	\$5,881,178
Fringe Benefits	\$37,031,366	\$36,643,520	(\$387,846)
Travel	\$1,584,615	\$2,068,849	\$484,234
Operating & Utilities	\$31,854,442	\$35,232,106	\$3,377,664
Scholarships & Fellowships	\$18,093,623	\$21,185,287	\$3,091,664
Capital	\$361,094	\$331,500	(\$29,594)
Total E&G Expenses	\$174,151,600	\$186,568,900	\$12,417,300
State Appropriations – One Time (Special Initiatives)	\$8,540,000	\$1,350,000	(\$7,190,000)
Adjusted Total E&G Expenses	\$182,691,600	\$187,918,900	\$5,227,300



Proposed FY23 vs. Proposed FY24 Reconciliation of Changes in E&G Natural Expenses

- Salary & Wages
 - FY24-5% Salary Pool & Benefits - \$3,792,968
 - New faculty position, promotions and critical adjustments (COB-Lecturer, Psy Professor, Engineering critical adjustments, FY23 additional promotions) - \$517,980
 - Chair stipends \$289,000
 - Academic Support positions (ITS) \$118,219
 - Student Services positions & adjustments (RUC Coordinator, International Education Coordinator) - \$383,000
 - Institutional Support positions & adjustments (HR Specialist, 2-EHS Coordinators) - \$186,310
 - Police and Facilities positions & critical adjustments \$343,629
 - FY24-Faculty promotions \$250,000
- Benefits
 - FY24-Salary Pool Benefits - \$1,137,891
 - Benefits for new positions - \$302,631
 - FY24-State Appropriation Group Health \$523,200
 - Benefit adjustment-University wide reallocated to utilities (\$2,352,000)
- Travel
 - Athletics inflationary cost \$138,073
 - Funds reallocated from operating \$350,000
- Operating & Utilities
 - Crossville TAP Property \$500,000
 - Athletics inflationary cost \$86,352
 - Disability Services \$30,000
 - CourseDog software \$100,113
 - Library \$150,000
 - FY24-Utilities-anticipated ACME online \$447,400
 - FY23-Loss of TVA reimbursement \$260,000
 - FY23-Inflationary cost increase of utilities \$1,736,069
 - FY24-Lab Science contracts \$350,000
 - SAF & Online Fee adjustments \$483,028
 - CEROC perm funding - \$480,000
 - Funds reallocated from capital \$30,000
 - Funds reallocated to travel (\$350,000)
 - Funds reallocated to salaries (\$478,487)
 - Funds reallocated to benefits (new positions) (\$116,200)
 - Utilities reallocated to Auxiliary due to increase (\$330,000)
- Scholarships
 - Presidential Scholars-1st year FY23 - \$1,240,400
 - Athletic scholarships FY23 - \$170,480
 - Presidential Scholars – 2nd year FY24 - \$1,481,400
 - TCA mandated scholarships \$200,000
- Capital
 - Funds reallocated to operating (\$30,000)
- State Appropriations – One Time (Special Initiatives)
 - Water Center \$150,000
 - Appalachian Craft Center (\$2,840,000)
 - CEROC (\$1,000,000) – shift to permanent state appropriations
 - Crossville TAP (\$3,500,000)-shift to permanent state appropriations



Attachment B

FIRST AMENDMENT AND MODIFICATION OF OPERATING AGREEMENT FOR AGRICULTURAL PROPERTY

THIS FIRST AMENDMENT AND MODIFICATION OF OPERATING AGREEMENT FOR AGRICULTURAL PROPERTY (“First Amendment”) between **TECH FARMS, LLC**, a Tennessee nonprofit limited liability company (“Tech Farms”), and **TENNESSEE TECHNOLOGICAL UNIVERSITY**, a public educational institution which is operated through the Tennessee state university system (“TTU”), is entered into to be effective as of the 1st day of July, 2023 (the “Effective Date”). This Agreement is also joined by the Tennessee Technological University Foundation, for the purpose of evidencing its approval to the terms hereof.

R E C I T A L S:

A. Tech Farms and TTU entered into that certain Operating Agreement for Agricultural Property which was executed on June 27, 2017 (“the Operating Agreement”), pertaining to the use, operation, management, and upkeep of the two farm properties donated by Millard Oakley and wife J.J. Oakley (the Farms”) ; and

B. Tech Farms and TTU desire to enter into this First Amendment in order to acknowledge the continuation of the Operating Agreement and to modify certain provisions therein; and

C. TTU desires to expand its use of the Farms for educational, agricultural, research, and scientific purposes, and has requested that it assume from Tech Farms all responsibility for the daily operations, management, maintenance, and upkeep of the Farms, and to also assume responsibility for performance of all obligations and payment of all costs incurred in undertaking such expanded uses; and

D. Tech Farms is willing to allow TTU to undertake all such expanded uses and to assume responsibility for the performance of all obligations and payment of all costs relating thereto; and

E. Pursuant to legislative changes by the State of Tennessee, TTU is no longer operated through the Tennessee Board of Regents system, but rather is operated by an independent board as part of the state university system established under T.C.A. §Title 49, Chapter 8;

NOW, THEREFORE, in consideration of the premises set forth herein, the receipt and sufficiency of which is acknowledged, Tech Farms and TTU agree as follows:

1. Continuation of Term of Operating Agreement. The initial term of the Operating Agreement expired on June 30, 2021. The Operating Agreement commenced a new five (5) year term on July 1, 2021 as specified in Article 2 of the Operating Agreement, and the provisions regarding renewal terms as set forth in Article 2 shall continue in full force and effect, except regarding the payment of consideration as modified by this First Amendment.

2. **Adjustments in Payment of Consideration.** In recognition of the assumption of responsibilities and costs by TTU as established herein, the annual cash consideration which has previously been paid by TTU to Tech Farms as established under Article 1 of the Operating Agreement shall be terminated. Effective as of the Effective Date, TTU will no longer be required to pay cash consideration for usage of the Farm, and instead shall assume full control of and responsibility for all Farm operations, management, maintenance, and upkeep, as detailed in this First Amendment. If circumstances evolve during the Term of the Operating Agreement (as it may be extended from time to time) to require the reestablishment of cash consideration to be paid by TTU, any future adjustments in consideration will be negotiated between the parties as specified in Article 1 and Article 2 of the Operating Agreement.

3. **Expansion in TTU's Rights for Use of Premises.** TTU's rights to use of the Farms as specified in Article 3 of the Operating Agreement shall be expanded so that TTU will have the right to utilize the entirety of the Farms, including all agricultural property; all farm structures; all greenhouse and nursery facilities; all wells, ponds, and irrigation systems; all farm equipment and machinery, all fencing and gates, all utility systems, all roadways, and all other real property or personal property associated with the ongoing use of the Farms, except for the management and harvesting of timber and exercise of mineral rights, as detailed herein. TTU's rights for expanded use of the Farms shall not materially diminish the value of the Farms as agricultural and timber-producing properties.

4. **Undertaking of New or Additional Operations.** With TTU's expanded rights of use of the Farms and its assumption of the day-to-day operation of the Farms as detailed herein, the provisions of Article 4 in the Operating Agreement are modified to the extent that TTU no longer needs to advise Tech Farms of plans, operational details, and budget details of any new or additional operations which TTU undertakes on the Farms, unless such operations would threaten to materially undermine the value or availability of the Farms for agricultural and timber production purposes. Notwithstanding these expanded rights, TTU will not have the right to construct new buildings and/or structures on the Farms which do not relate to or arise from agriculture and other natural science programs.

5. **Responsibility for Day-to-Day Operations, Maintenance, and Management of the Farms.**

(a) In recognition of TTU's expanded uses of the Farms, the management responsibilities assigned to Tech Farms in Article 5(a) of the Operating Agreement shall be transferred to and assumed by TTU, effective as of the Effective Date. All ongoing uses and operations by Tech Farms will terminate not later than the Effective Date.

(b) Tech Farms will continue to own all of the Farm real property and improvements, and will also continue to own all timber rights and all mineral rights on the Farm, which shall be managed in accordance with the provisions of Section 7 below.

6. **Responsibility for Staffing.** The provisions of Article 6 of the Operating Agreement shall remain in effect, expanded to include all new activities being undertaken by TTU. After the Effective Date, TTU will be responsible for all staffing and expenses of all operations which it undertakes on the Farms, and Tech Farms shall not be required to maintain

any employees or staff, or to perform any ongoing management, maintenance, upkeep, or repair duties or obligations.

7. Ownership of Improvements and Equipment; Transfer of Equipment to TTU; Obligations for Insurance.

(a) Ownership of all Real Property in the Farms and all attached improvements thereon, as well as ownership of all timber rights and mineral rights, shall remain with Tech Farms. As a modification of Article 7 of the Operating Agreement, Ownership of all farm machinery, all equipment, and all non-attached improvements shall be transferred from Tech Farms to TTU, by donation through a Quitclaim Bill of Sale, on an AS-IS, WHERE-IS basis, with Tech Farms making no warranty of title or condition of repair or suitability for any intended use or purpose of any of such machinery or equipment. No later than the Effective Date, Tech Farms shall deliver such Quitclaim Bill of Sale and TTU shall assume all responsibility and all costs for ownership, use, operation, maintenance, repair, and replacement, and all attendant liabilities pertaining to any such machinery, equipment, and improvements.

(b) As the owner of the Real Property and all improvements thereon, Tech Farms shall be responsible for keeping in place all property and casualty insurance needed for repair, reconstruction, or replacement of any improvements which are damaged by fire, flood, or other casualty, and in the event of loss to any such improvements, Tech Farms shall use the proceeds of such insurance to repair, reconstruct, or replace the damaged improvements, unless the parties agree otherwise. Correspondingly, TTU shall be responsible for insuring its interest in all equipment and personal property utilized in connection with its operations on the Farms.

8. Ownership of Cattle. As a modification of Article 8 of the Operating Agreement, no later than the Effective Date, Tech Farms will transfer to TTU by donation through a Quitclaim Bill of Sale the ownership of all cattle and other livestock on the Farms. TTU will assume the ownership of such cattle and livestock on an AS-IS basis, with no representations or warranties.

9. Proceeds and Use of Products From Agricultural Operations. The provisions of Article 9 of the Operating Agreement are modified to state that the proceeds and use of all products generated in operations from the Farms, including the sale of hay, produce, and orchard products which may have previously accrued to the benefit of Tech Farms, shall belong to TTU, except for the proceeds of timber harvest or mineral production as detailed in Section 10 below.

10. Timber Rights and Proceeds from Timber and Mineral Rights Production. Tech Farms shall continue to own all timber and mineral rights on the Farms (to the extent that such mineral rights are held by Tech Farms), and the proceeds from any sale of timber or the development of any mineral rights shall be retained by Tech Farms. It is the intention of Tech Farms to set aside any such proceeds in a quasi-endowment for the maintenance and upkeep of the improvements on the Farms' properties.

11. AS-IS Condition of Land and Improvements. The provisions of Article 10 of the Operating Agreement shall remain unchanged.

12. **Liability of Parties; Responsibilities for Personal Injury or Property Damage.** The provisions of Article 11 in the Operating Agreement shall remain unchanged.

13. **No Other Modifications.** Except as expressly set forth in this First Amendment and Modification, all other provisions of the Operating Agreement remain in full force and effect and unmodified by this Agreement.

14. **No Present Defaults.** Each party acknowledges to the other that as of the date of this instrument, no defaults or failures in performance exist by either party under the provisions of the original Operating Agreement.

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IN WITNESS WHEREOF, the parties have executed this First Amendment and Modification as of the date first above written.

TECH FARMS, LLC

By: _____
Title: _____

TENNESSEE TECHNOLOGICAL UNIVERSITY

By: _____
Title: _____

JOINDER BY TTU FOUNDATION

The Tennessee Technological University Foundation also joins in this Agreement to indicate its approval of the terms hereof, in recognition of its role as the sole member of the Tech Farms, LLC nonprofit LLC.

TENNESSEE TECHNOLOGICAL UNIVERSITY FOUNDATION

By: _____
Title: _____



Agenda Item Summary

Date: September 28, 2023

Agenda Item: Financial Update

Review

Action

No action required

PRESENTER: Dr. Claire Stinson, Vice President for Planning & Finance

PURPOSE & KEY POINTS: Update on University finances including comparison of end-of-year budget to actual end-of-year expenditures and tuition and fee revenue projections based on fall semester enrollments.



Agenda Item Summary

Date: September 28, 2023

Agenda Item: Disclosed Projects FY2023-24

Review

Action

No action required

PRESENTER(S): Dr. Claire Stinson, Vice President for Planning & Finance

PURPOSE & KEY POINTS: Review and approval of disclosed projects for:

FY2023-24

1. Headhouse (Greenhouse) Renovation
2. Baseball Hitting and Pitching Facility

Disclosed Projects 23-24										
	Project	Project Description	Project Cost	New Sq. Ft.	Funding Source					
					TSSBA	Gifts	Grants	Auxiliary	Gift-in-Place	Plant Funds*
1	Baseball Hitting and Pitching Facility	Demolish the existing batting cage and construct a new hitting and pitching facility on the same site.	\$ 1,150,000	8,000						\$ 1,150,000
2	Headhouse (Greenhouse) Renovation	The renovation will reconfigure the interior spaces to provide for current program functions and will include upgrades to the interior finishes and services.	\$ 500,000				\$ 200,000			\$ 300,000

Plant Funds are E & G funds set aside for specific or multi-year projects.



Agenda Item Summary

Date: September 28, 2023

Agenda Item: Performance Evaluation and Performance-Based Compensation Analysis

Review

Action

No action required

PRESENTER: Mr. Kevin Vedder, Associate Vice President of Human Resources

PURPOSE & KEY POINTS: Overview of FY2023 Employee Performance Outcomes and Performance-Based Compensation.



Agenda Item Summary

6.1

Date: September 28, 2023

Division: Planning and Finance

Agenda Item: Tenure Upon Appointment Recommendations

- Review** **Action** **No action required**

PRESENTER: Dr. Lori Bruce, Provost

PURPOSE & KEY POINTS:

This tenure recommendation is being presented at the September 2023 Board meeting, as Dr. Michael Hoane, Dr. Anthony Skjellum and Dr. Zhanjiang (John) Liu were hired after the June 2023 Board meeting. Dr. Hoane was hired as Chair of the Department of Counseling and Psychology in the College of Education. Dr. Skjellum was hired as Professor in the Department of Computer Science in the College of Engineering. Dr. Liu was hired as Vice President of Research with tenure in the Department of Biology. All supporting documents are included.

Recommendation for tenure for each of these individuals is supported by their respective department faculty, college dean, and the provost.

February, 2023

MICHAEL R. HOANE, Ph.D.

PERSONAL INFORMATION

Home address: [REDACTED]
[REDACTED]
[REDACTED]

Work address: Department of Psychological Sciences
[REDACTED] [REDACTED] [REDACTED]
[REDACTED]
Augusta University
Augusta, GA 30912
[REDACTED]
[REDACTED]

Citizenship: United States of America

Google Scholar:
https://scholar.google.com/scholar?hl=en&as_sdt=0%2C11&q=hoane+mr&btnG=
Research Gate: http://www.researchgate.net/profile/Michael_Hoane/ (viewable pdfs)

CURRENT POSITION

Full Professor with Tenure
Departmental Chairperson
Director, Restorative Neuroscience Laboratory
Department of Psychological Sciences
Augusta University

PREVIOUS FACULTY APPOINTMENTS

Augusta University: Department of Psychological Sciences (2018-pres)
Full Professor
Southern Illinois University: Department of Psychology (2004-2018)
Assistant, Associate, Full Professor
East Carolina University: Department of Psychology (1999-2004)
Visiting Assistant Professor, Assistant Professor

EDUCATION

Texas Christian University, Fort Worth, TX
Department of Psychology
Ph.D., in Experimental Psychology (Behavioral Neuroscience); May, 1996

6.2

Advisor: Dr. Timothy Barth

Dissertation: Establishing the window of opportunity for MgCl₂: The effect of onset of testing

M.S., in Experimental Psychology (Behavioral Neuroscience); December, 1994

Advisor: Dr. Timothy Barth

Thesis: The effects of three neuroprotective drugs on recovery of function in an electrolytic lesion model of neural trauma in the rat

Knox College, Galesburg, IL

B.A.'s. in Psychology and Biology; May, 1990

POST-DOCTORAL APPOINTMENTS

Northwestern University School of Medicine

Post-doctoral Research Associate (1998 – 1999)

CMIER, Neurobiology Program

2300 Children's Plaza #209

Chicago, IL

CytoTherapeutics Inc. (affiliate of Brown University)

Post-doctoral Scientist (1997 – 1998)

Department of Behavioral Neuroscience

701 George Washington Highway

Lincoln, RI

Emory University School of Medicine

Post-doctoral Fellow (1996 – 1997)

Brain Research Laboratory

Department of Neurology

Atlanta, GA

APPOINTMENTS: ADMINISTRATIVE/PROFESSIONAL

Chair, Dept. of Psychological Sciences, Augusta Univ. (2018-pres)

Chair, Dept. of Psychology, SIU (2016-2018).

Undergraduate Program Director, Dept. of Psychology, SIU (2016-2017).

Executive Committee of the Neuroscience Research Center, Southern Illinois University (2012-2018).

- Director of Undergraduate Neuroscience, Southern Illinois University (2012-pres).
- Faculty Sponsor, SIU Neuroscience Undergraduate Student Organization

Federal Appointment to Veterans Health Administration Advisory Committee Scientific Merit Review Board for Brain Injury: TBI & Stroke (2012-2016).

CURRENT ADMINISTRATIVE DUTIES/ACCOMPLISHMENTS**Augusta University (2018-pres)**

- New Building Design, Build, and Move Committee (5 committees) (2018-2023)
- Core Team member for evaluation/ implementation of new course evaluations
- AU Pandemic Evaluation Committee-Research Activities workgroup
- Research workgroup campus reopening committee
- Steering committee for TRIBA initiative
 - Transdisciplinary Research Inflamm-aging and Brain Aging
 - 25M\$ cluster hire initiative
- Development of a BS in neuroscience
- Faculty workload taskforce

(Department level)

- Performed Academic Program Review (2023)
- Changed the climate of the department from authoritarian to group-based leadership
- Prepared and presented a proposal for a PsyD program to upper leadership
- Provided leadership for a large diverse academic department
 - Manage 15+ tenure, tenure track, and adjunct faculty
 - 30+ M.S. students
 - 350 undergraduate majors, 150+ minors
 - Departmental staff
- Oversight of MPCAC accreditation for M.S. in clinical/consulting tract
- Oversight of M.S. in Experimental and Applied tracts
- Launched a new B.S. in psychology pre-health concentration
- Successfully guided the department to fully online instruction during the pandemic
- Recruited 2 new tenure track and 1 lecturer during the pandemic
- Curriculum, scheduling, P&T, and grievance arbitration

PAST ADMINISTRATIVE DUTIES/ACCOMPLISHMENTS (Department level)**Southern Illinois University**

- Provided leadership for a large diverse academic department
 - Managed 20+ tenure, tenure track, and adjunct faculty
 - 100 graduate students in 4 different programs
 - 420 undergraduate majors, 500+ minors
 - 2 revenue generating institutes
 - Departmental staff
- Leadership of Brain and Cognitive Science, Clinical, Counseling and Applied Ph.D. programs
- Primary fiscal officer for the department
 - Manage \$1M training assignment budget and other accounts
 - Staff personnel matters
 - Recruited a revenue generating institute into the department
 - Budget and productivity exercises and evaluations
- Grievance arbitration
- Curriculum: scheduling, assessment, review and enhancement

Recruitment and retention of faculty and students
 Foster extramural research support
 Alumni relations
 Mentor, support, and evaluate promotion and tenure process
 Annual reviews of staff and faculty
 Program development: neuroscience and accelerated Masters in Applied Psychology

6.2

PAST ADMINISTRATIVE DUTIES/ACCOMPLISHMENTS (College level)

Served on college of Liberal Arts Dean's Council

- Executive council to the Dean's office
- Program review and new program evaluation
- Responsible for college level awards

College level promotion and tenure committee (review 14-20 portfolios a year)
 College and Department level student recruitment and retention efforts

PAST ADMINISTRATIVE DUTIES/ACCOMPLISHMENTS (University level)

Faculty Senator

- Department representative (elected) to a large senate that governs academic units on the Carbondale and Springfield campuses
- Approve curriculum change requests, provide shared governance between the faculty and administration
- Support faculty and student welfare

Neuroscience Research Center Executive Council

- Administration of neuroscience activities on the Carbondale and Springfield campuses
- Faculty recruitment and retention, academic program development, and extramural funding

Institutional Animal Care and Use Committee

- Provide administration, oversight, and enforcement of Federal, State and University laws governing the use of animal in research and teaching on campus
- Annual facility and Federal Accreditation inspections

Special Assignment, Vice Chancellor for Research

- Appointed to Chair a committee tasked with evaluation of the Laboratory Animal Program on campus and research climate
- Prepared white paper report detailing pro's and con's related to the Animal Program
- Used by Chancellor's office in evaluation of university resources and budget cutting

Special Assignment, Vice Chancellor of Academic Affairs

- Member of a special faculty judicial committee
- Tasked to investigate a serious allegation of scientific misconduct on campus

- Interviewed all parties associated with the allegation and provided a final assessment report to the VCAA
- Pre-health Advisory Committee
- University wide committee tasked with administration of the pre-health majors on campus
 - Conduct mock interviews and evaluations of students during the application process for professional health school admissions
 - Curriculum development for the pre-health majors

ACADEMIC PROGRAM REVIEWS

Dept of Psychological Sciences, undergraduate program review. Interval (Spring 2023).
Department of Psychology, undergraduate program. External Evaluator (Spring 2023).

COMMUNITY APPOINTMENTS: ADMINISTRATIVE/PROFESSIONAL

Herrin Youth Sports Board of Directors; elected member (2013-2018)
The Science Center of Carbondale Board of Directors; elected member (2013-2015)

AWARDS

Awarded the 2014 CoLA Scholar Excellence Award (April 7, 2014)
Nominated for University Teaching Awards (2003 – 2004).
Hazel F. Stapleton Memorial Excellence in Teaching Award (2002 – 2003).
Presented by the Department of Psychology.
College Research Award. (2002).
Presented by the ECU College of Arts & Sciences.
Finalist for the 1996 Goldberger Behavioral Neuroscience Prize presented by the National Neurotrauma Society.
Animal Care Fellowship (1993 – 1996), Department of Psychology, Texas Christian University.

RESEARCH INTERESTS

- Translational neuroscience and development of novel therapies for brain injury and neurological disorders
- The role of nutritional factors on neural plasticity following brain injury
- The role of environmental, rehabilitative and age factors on plasticity and recovery from brain injury
- Behavioral assessment of CNS dysfunction and model test development
- Characterization of the pathophysiological events associated with brain injury

GRANTS**Completed**

Faculty Senate Creative Active Grant. M.R. Hoane; PI. Eat your Wheaties: Can riboflavin improve outcome following traumatic brain injury in the rat? (Summer 2002). Awarded \$13,000.

UNC: Institute of Nutrition. M.R. Hoane; PI. Dietary magnesium and traumatic brain injury. 7/02/02-6/30/03. Awarded \$4,700.

ECU College of Arts & Sciences. M.R. Hoane; PI. Evaluation of the potential efficacy of vitamin D₃ therapy in an experimentally induced Parkinson's disease model. (Spring 2003). Awarded \$35,750.

National Institute of Neurological Disorders and Stroke. 1 R15 NS045647-01. M.R. Hoane; PI. Vitamin B₃ and traumatic brain injury. 4/01/03-04/01/05. Awarded \$132,525.

National Institute of Neurological Disorders and Stroke. 3 R15 NS045647-01S1. M.R. Hoane; PI. Vitamin B₃ and traumatic brain injury. 10/01/03-10/01/05. Awarded \$30,724.

ORDA, Southern Illinois University. M.R. Hoane; PI. Development of embryonic stem cell treatment strategies for the traumatically injured brain. 06/01/05 – 05/31/06. \$24,704.

National Institute of Neurological Disorders and Stroke. R15 NS045647-03 M.R. Hoane; PI. Vitamin B₃ and traumatic brain injury. 03/01/06-02/29/09. Awarded \$217,500.

Cognosci Inc. M.R. Hoane; PI. Initial preclinical efficacy testing of COG1410 in a rat model of TBI. 03/01/06-07/31/06. Awarded \$25,001.

State of Illinois. M.R. Hoane; Co-Investigator. Illinois Regenerative Medicine Institute. "The Southern Illinois Regenerative Medicine Institute - An ABC Approach". Awarded \$1,100,000.

Cognosci Inc. M.R. Hoane; PI. Preclinical screening of novel apoE-derived peptides in a rat model of traumatic brain injury. 12/01/06-05/01/09. Awarded \$203,000.

Cognosci Inc. M.R. Hoane; PI. Preclinical screening of novel apoE-derived peptides in a rat model of traumatic brain injury. (10/31/08). Awarded \$3,000.

National Institute of Neurological Disorders and Stroke. 2R15 NS045647-04
M.R. Hoane; PI. Vitamin B₃ and traumatic brain injury. Awarded \$218,250.

Center for Integrative Research – Cognitive and Neural Science.

M.R. Hoane; PI. A pilot study: Evaluation of a preclinical model of motor enrichment in young and old Fischer 344 rats. Awarded \$2000.

Department of Defense: TBI Concept Award. (A. Tan; PI) M.R. Hoane; Co-I. Vagus nerve stimulation and TBI. 08/01/08-07/31/10. Awarded \$216,750.

National Institute of Neurological Disorders and Stroke. 2R15 NS045647-04
M.R. Hoane; PI. Vitamin B₃ and traumatic brain injury. 07/01/09-06/31/12. Awarded \$218,250.

NINDS and the NICHD. 1R01HD061944-01
(Gail Anderson; PI) M.R. Hoane; Co-PI. Multi-drug combinations to promote neurological recovery in traumatic brain injury. 08/01/09-07/31/15. Awarded subcontract \$1,594,033. Total awarded \$3,690,321.

Center for Integrative Research – Cognitive and Neural Science.

M.R. Hoane; PI. A novel cognitive therapy for the treatment of TBI in aged Fischer 344 rats. 08/01/10-08/31/15. Awarded \$37,000.

Student Grants

2006 REACH Award, SIU. ██████████ Student.
COG1410 and TBI. Awarded \$1,500.

LaVonne A. Straub Annual Student Research Award. ██████████ Awardee, M.R. Hoane; Supervisor.
Determining the duration of nicotinamide treatment post-traumatic brain injury. 10/11/06-5/01/07. Awarded \$1,000.

2007 REACH Award, SIU. ██████████ Student.
Modeling PTSD following bilateral frontal contusion injury in the rat. Awarded \$1,500.

2008 REACH Award, SIU. ██████████ Student.
McTBI: The effects of a fast food diet on outcome from TBI. Awarded \$1,500.

2011 REACH Award, SIU. ██████████ Student.
Does PTSD worsen functional recovery after TBI? Awarded \$1,500.

6.2

PUBLICATIONS**Bold = Undergraduate Co-author****Bold = Graduate Co-author**

1. Saponjic, R.M., Hoane, M.R., Barbay, S., & Barth, T.M. (1995). Scopolamine facilitates recovery of function following unilateral electrolytic sensorimotor cortex lesions in the rat. *Restorative Neurology and Neuroscience*, 8, 205-212.
2. Hoane, M.R., Raad, C., & Barth, T.M. (1997). Non-competitive NMDA antagonists and anti-oxidant drugs reduce striatal atrophy and facilitate recovery of function following lesions of the rat cortex. *Restorative Neurology and Neuroscience*, 11, 71-82.
3. Hoane, M.R., Irish, S.L., Marks, B.B., & Barth, T.M. (1997). Pre-operative regimens of magnesium chloride facilitate recovery of sensorimotor function following unilateral electrolytic lesions of the rat somatic sensorimotor cortex. *Brain Research Bulletin*, 45, 45-51.
4. Janis, L.S., Hoane, M.R., Conde, D., Fulop, Z., & Stein, D.G. (1998). Acute ethanol administration reduces the cognitive deficits associated with traumatic brain injury in rats. *Journal of Neurotrauma*, 15, 105-115.
5. Lindner, M.D., Cain, C.K., Plone, M.A., Frydel, B.R., Blaney, T.J., Emerich, D.F., & Hoane, M.R. (1999). Partial nigrostriatal dopaminergic cell loss in middle-aged rats produces robust, enduring akinesia, rigidity, tremor and cognitive deficits despite exuberant compensatory neurological mechanisms. *Behavioural Brain Research*, 102, 1-16.
6. Hoane, M.R., Gulwadi, A.G., Morrison, S., Hovanesian, G., Lindner, M.D., & Tao, W. (1999). Differential in vivo effects of neurturin and glial cell-line-derived neurotrophic factor. *Experimental Neurology*, 160, 235-243.
7. Hoane, M.R., Puri, K.D., Xu, L., Stabila, P., Zhao, H., Gulwadi, A.G., Phillips, H., Devaux, B., Lindner, M.D., & Tao, W. (2000). Mammalian cell-produced neurturin is more potent than purified e. coli-produced NTN. *Experimental Neurology*, 162, 189-193.
8. Hoane, M.R., Barbay, T.M., & Barth, T.M. (2000). Large cortical lesions produce enduring placing deficits in untreated rats and treatment with NMDA antagonists or anti-oxidants induce behavioral recovery. *Brain Research Bulletin*, 53, 175-186.
9. Hoane, M.R. & Barth, T.M. (2001). The behavioral and anatomical effects of MgCl₂ treatment in an electrolytic lesion model of cortical injury in the rat. *Magnesium Research*, 14, 51-63.
10. Hoane, M.R., & Barth, T.M. (2002). The window of opportunity for administration of magnesium therapy following focal brain injury is 24 hours but task dependent in the rat. *Physiology & Behavior*, 76, 271-280.
11. Gulwadi, A.G., Hoane, M.R., Saydoff, J.A., Frydel, B., & Lindner, M.D. (2002). No detectable analgesic effects in the formalin test even with one million bovine adrenal chromaffin cells. *Pain*, 99, 263-271.

12. Hoane, M.R., **Knotts, A.A.**, Akstulewicz, S., **Aquilano, M.**, & Means, L.W. (2003). The behavioral effects of magnesium therapy on recovery of function following bilateral cingulate cortex lesions in the rat. *Brain Research Bulletin*, 60, 105-114.
13. Hoane, M.R., **Akstulewicz, S.L.**, & Toppen, J. (2003). Treatment with vitamin B₃ improves functional recovery and reduces GFAP expression following traumatic brain injury in rats. *Journal of Neurotrauma*, 20, 1189-1199.
14. Hoane, M.R., **Becerra, D.**, **Shank, E.J.**, **Tsatko, L.**, Pak, E.S., & Murashov, A.K. (2004). Transplantation of neuronal and glial precursors dramatically improves sensorimotor function but not cognitive function in the traumatically injured brain. *Journal of Neurotrauma*, 21, 163-174.
15. Hoane, M.R., **Lasley, L.A.**, & **Akstulewicz, S.L.** (2004). Middle age increases tissue vulnerability and impairs sensorimotor and cognitive recovery following traumatic brain injury in the rat. *Behavioural Brain Research*, 153, 189-197.
16. Hoane, M.R. (2004). Magnesium therapy and recovery of function in experimental models of brain injury and neurodegenerative disease. *Clinical Calcium*, 14, 65-70.
17. Hoane, M.R. (2005). The effect of MgCl₂ on recovery of function following traumatic brain injury in the rat. *Restorative Neurology and Neuroscience*, 23, 67-77.
18. Hoane, M.R., **Wolyniak, J.G.**, & **Akstulewicz, S.L.** (2005). Administration of riboflavin improves behavioral outcome and reduces edema formation and GFAP expression following traumatic brain injury. *Journal of Neurotrauma*, 22, 1112-1122.
19. **Kokiko, O.N.**, Murashov, A.K., & Hoane, M.R. (2006). Administration of raloxifene reduces sensorimotor and working memory deficits following traumatic brain injury. *Behavioural Brain Research*, 170, 233-240.
20. **Barbre, A.B.** & Hoane, M.R. (2006). Magnesium and riboflavin combination therapy following cortical contusion injury in the rat. *Brain Research Bulletin*, 69, 639-646.
21. Hoane, M.R., **Gilbert, D.R.**, **Holland, M.A.**, & **Pierce, J.L.** (2006). Nicotinamide reduces acute cortical neuronal death and edema in the traumatically injured brain. *Neuroscience Letters*, 408, 35-39.
22. Hoane, M.R., Tan, A., **Pierce, J.L.**, Anderson, G.D., & Smith, D.C. (2006). Nicotinamide treatment reduces behavioral impairments and provides cortical protection following fluid percussion injury. *Journal of Neurotrauma*, 23, 1535-1548.
23. Hoane, M.R., **Ellis, A.**, & **Kaplan, S.** (2006). Nicotinamide reduces blood-brain barrier breakdown and apoptosis following contusion injury in rats. *Brain Research*, 1125, 185-193.
24. **Becerra, D.**, **Tsatko, L.**, Pak, E.S., Murashov, A.K., & Hoane, M.R. (2007). Transplantation of GABAergic neurons but not astrocytes induces recovery of sensorimotor function in the traumatically injured brain. *Behavioural Brain Research*, 179, 118-125.
25. Hoane, M.R., **Pierce, J.L.**, **Holland, M.A.**, **Birky, N.D.**, **Dang, T.**, Vitek, M.P., & McKenna, S.E. (2007). The Novel apolipoprotein E-based peptide COG1410 improves sensorimotor performance and reduces injury magnitude following cortical contusion injury. *Journal of Neurotrauma*, 24, 1108-1118.
26. Hoane, M.R. (2007). Assessment of cognitive function following magnesium therapy in the traumatically injured brain. *Magnesium Research*, 20, 229-236.

27. **Holland, M.A.**, Tan, A.A., Smith, D.C., & Hoane, M.R. (2008). Nicotinamide treatment provides acute neuroprotection and GFAP regulation following fluid percussion injury, *Journal of Neurotrauma*, 25, 140-152.
28. Hoane, M.R., **Gilbert, D.R.**, **Barbre, A.B.**, & **Harrison, S.A.** (2008). Magnesium dietary manipulation and recovery of function following controlled cortical damage in the rat. *Magnesium Research*, 21, 29-37.
29. Hoane, M.R., **Pierce, J.L.**, **Holland, M.A.**, & Anderson, G.D., (2008). Nicotinamide induces behavioral recovery when administered up to four hours following cortical contusion injury in the rat. *Neuroscience*, 154, 861-868.
30. Hoane, M.R., **Pierce, J.L.**, **Kaufman, N.A.**, & **Beare, J.E.**, (2008). Variation in chronic nicotinamide treatment after traumatic brain injury can alter components of functional recovery independent of histological damage. *Oxidative Medicine and Cellular Longevity*, 1, 46-53.
31. Hoane, M.R., **Kaufman, N.A.**, Vitek, M.P., & McKenna, S.E. (2009). COG1410 improves cognitive performance and reduces cortical neuronal loss in the traumatically injured brain. *Journal of Neurotrauma*, 26, 121-130.
32. Young, M.E., Clark, M.H., **Goffus, A.**, & Hoane, M.R. (2009). Mixed effects modeling of Morris water maze data: Advantages and cautionary notes. *Learning and Motivation*, 40, 160-177.
33. Tan, A.A., **Quigley, A.**, Smith, D.C., & Hoane, M.R. (2009). Strain differences in response to traumatic brain injury in Long Evans compared to Sprague-Dawley rats. *Journal of Neurotrauma*, 26, 539-548.
34. **Quigley, A.**, Tan, A.A., & Hoane, M.R. (2009). The effects of hypertonic saline and nicotinamide on behavioral and cognitive function following cortical contusion injury in the rat. *Brain Research*, 1304, 138-148.
35. **Goffus, A.M.**, Anderson, G.D. & Hoane, M.R. (2010). Sustained delivery of nicotinamide limits cortical injury improves functional recovery following traumatic brain injury. *Oxidative Medicine and Cellular Longevity*, 3, 145-152.
36. **Kaufman, N.A.**, **Beare, J.E.**, Tan, A.A., Vitek, M.P., McKenna, S.E., & Hoane, M.R. (2010). COG1410, an apolipoprotein E-based peptide, improves cognitive performance and reduces cortical loss following moderate fluid percussion injury in the rat. *Behavioral Brain Research*, 214, 395-401.
37. **Kuypers, N.J.**, & Hoane, M.R. (2010). Pyridoxine (vitamin B6) administration improves behavioral and anatomical outcome following unilateral contusion injury in the rat. *Journal of Neurotrauma*, 27, 1275-1282.
38. **Swan, A.A.**, **Chandrashekar, R.**, **Beare, J.**, **Kaufman, N.A.**, & Hoane, M.R. (2011). Preclinical Efficacy testing in middle-aged rats: Nicotinamide, a novel neuroprotectant, losses functional efficacy following controlled cortical impact. *Journal of Neurotrauma*, 28, 431-440.
39. **Vonder Harr, C.**, Anderson, G.D., & Hoane, M.R. (2011). Continuous nicotinimide administration improves behavioral recovery and reduces lesion size following bilateral frontal controlled cortical impact injury. *Behavioural Brain Research*, 224, 311-317.

40. Anderson, G.D., Beyer, R.P., Farin, F.M., Bammler, T.K., Kantor, E.D., **Swan, A.A.**, & Hoane, M.R. (2011). The effects of progesterone dosing on gene expression following traumatic brain injury. *Journal of Neurotrauma*, 28, 1827-1843.
41. **Vonder Haar, C., Emery, M.A.,** & Hoane, M.R. (2012). Low dose folic acid administration confers no treatment effects, while high dose administration contributes to impairments following unilateral controlled cortical impact injury in the rat. *Restorative Neurology & Neuroscience*, 30, 291-302.
42. **Martens, K.M., Vonder Haar, C., Hutsell, B.,** & Hoane, M.R. (2012). A simple discrimination task used as a novel method of testing decision-making behavior following traumatic brain injury in the rat. *Journal of Neurotrauma*, 29, 2505-2512.
43. **Peterson, T.C.,** Kantor, E.D., Anderson, G.D., & Hoane, M.R. (2012). A comparison of the effects of nicotinimide and progesterone on functional recovery of cognitive behavior following cortical contusion injury in the rat. *Journal of Neurotrauma*, 29, 2823-2830.
44. **Martens, K.M., Vonder Haar, C., Hutsell, B.A.,** & Hoane, M.R. (2013). The dig task: A simple scent discrimination reveals deficits following frontal brain damage. *Journal of Visualized Experiments*, 71, 1-6. <http://www.jove.com/video/50033>.
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INDUSTRY RESEARCH WHITEPAPER (PAID)

1. Hoane, M.R. (2023). Nicotine therapy for the treatment of neurodegenerative disease and beneficial neuroplasticity. British American Tobacco Company.

BOOK CHAPTERS

1. Barth, T.M., Hoane, M.R., Barbay, S., & Saponjic, R.M. (1998). Effects of glutamate antagonists on recovery of behavioral functions after brain injury. In L.B. Goldstein (Ed.), Restorative neurology: Advances in the pharmacotherapy of recovery after stroke. (pp. 121-140) Futura: New York.

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4. Hoane, M.R. (2012). The role of magnesium in the pathophysiology and treatment of stroke and other neurological injuries. In Y. Li and J. Zhang (Eds.), Stroke Metals, (pp. 431-444) Springer; New York.
5. Kolowski, D.A., & Hoane, M.R. (2016). Neuroprotection and neuroplasticity following traumatic brain injury. Brain Injury Association of America's, Essential Brain Injury Guide.

PUBLISHED JOURNAL ARTICLE COVERS

1. Fluorescent immunohistochemistry of GFAP and FJ in the damaged rodent brain. **Holland, M.A.**, Tan, A.A., Smith, D.C., & Hoane, M.R. (2008). Nicotinamide treatment provides acute neuroprotection and GFAP regulation following fluid percussion injury, *Journal of Neurotrauma*, 25, 140-152.

PUBLISHED ABSTRACTS FROM CONFERENCES

Bold = Undergraduate Co-author

Bold = Graduate Co-author

1. Hoane, M.R., **Tramonte, J.J.**, **Wright, A.J.**, **Raad, C.**, & Barth, T.M. (1996). Magnesium chloride and PBN can induce recovery of function when none is expected in rats with large lesions of the sensorimotor cortex. *Journal of Neurotrauma*, 13.
2. Hoane, M.R., Gulwadi, A.G., Blaney, T.J., Handy, J.T., Devaux, B., Lindner, M.D., Tao, W., & Phillips, H.S. (1998). Evaluation of the biological activity and potential adverse effects of chronic intraventricular infusions of neurturin in the rat. *Journal of Neurotrauma*, 15.
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5. **Lasley, L.A.**, Akstulewicz, S.L., & Hoane, M.R. (2002). The effect of age on sensorimotor and cognitive recovery following bilateral frontal cortex contusion injury in the rat. *Journal of Neurotrauma*, 19, 1328.

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7. **Smith, A.B.**, & Hoane, M.R. (2003). Magnesium and vitamin B₂ combination therapy following cortical contusion injury in the rats. *Journal of Neurotrauma*, 20, 1105.
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10. **Ellis, A.** & Hoane, M.R. (2004). The effects of vitamin B₃ on apoptosis following cortical contusion injury in the rat. *Journal of Neurotrauma*, 21, 1334.
11. **Gilbert, D.R.** & Hoane, M.R. (2004). Effects of vitamin B₃ on edema formation following cortical contusion injury in the rat. *Journal of Neurotrauma*, 21, 1316.
12. Hoane, M.R., & **Kaplan, S.** (2004). Administration of vitamin B₃ reduces blood-brain barrier breakdown in the traumatically injured brain. *Journal of Neurotrauma*, 21, 1328.
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15. Hoane, M.R., Modglin, A., **Hutsell, B., Watkins, C., Pierce, J.L.**, Anderson, G.D., & Smith, D.C. (2005). The effects of nicotinamide treatment following fluid percussion injury in the rat. *Journal of Neurotrauma*, 22, 1235.
16. **Pierce, J.L., Holland, M.A.**, Anderson, G.D., & Hoane, M.R. (2006). Nicotinamide treatment induces recovery when administered up to 4 hours post-tbi in the rat. *Journal of Neurotrauma*, 23, 989.
17. Tan, A., **Duke, A.**, Hoane, M.R., & Smith, D.C. (2006). Differential behavioral outcomes and durations of unconsciousness in long evans vs. Sprague-dawley rats following identical fluid percussion brain injury. *Journal of Neurotrauma*, 23, 1032.
18. **Holland, M.A.**, Tan, A., Smith, D.C., & Hoane, M.R. (2006). Nicotinamide treatment provides acute neuroprotection and GFAP regulation in the brain following fluid percussion injury. *Journal of Neurotrauma*, 23, 1014.
19. **Pierce, J.L. Yearwood, J.**, Al-Talla, Z., Tolley, L., & Hoane, M.R. (2007). Examination of the window of opportunity for chronic low-dose administration of nicotinamide following TBI in the rat. *Journal of Neurotrauma*, 24, 1266.
20. **Goffus, A.**, & Hoane, M.R. (2007). Chronic administration of nicotinamide dramatically improves and facilitates sensorimotor recovery in the traumatically injured brain. *Journal of Neurotrauma*, 24, 1265.

21. **Swan, A.**, & Hoane, M.R. (2007). Preclinical efficacy testing in middle aged rats: Nicotinamide, a novel neuroprotectant, worsens functional outcome following controlled cortical impact. *Journal of Neurotrauma*, 24, 1238.
22. **Quigley, A.**, & Hoane, M.R. (2009). The effects of hypertonic saline and nicotinamide on behavioral and cognitive function following cortical contusion injury. *Journal of Neurotrauma*, 25, 914.
23. **Kaufman, N.**, Beare, J., Tan, A., McKenna, S., Vitek, M., & Hoane, M.R. (2009). COG1410, an apolipoprotein E-based peptide, improves cognitive performance and reduces cortical loss following moderate fluid percussion injury in the rat. *Journal of Neurotrauma*, 25, 909.
24. **Kuypers, N.** & Hoane, M.R. (2009). Pyridoxine administration improves behavioral and anatomical outcome following unilateral CCI in rats. *Journal of Neurotrauma*, 25, 889.
25. **Swan, A.**, & Hoane, M.R. (2009). Age influences the efficacy of nicotinamide, a novel neuroprotectant, in the treatment of traumatic brain injury following controlled cortical impact. *Journal of Neurotrauma*, 25, 910.

INVITED PRESENTATIONS

1. The effects of magnesium treatment following cortical injury on recovery of function in the rat. Presented at the 2002 **Gordon Research Conference: Magnesium in Biochemical Processes and Medicine**, Ventura CA., February 3-8.
2. Vita-nutrient therapies for the treatment of brain injuries and diseases. **ECU Brody School of Medicine, Physiology Department Seminar**, Greenville, NC, November 21, 2002.
3. The effects of dietary magnesium on traumatic brain injury. Kaplan, S., & Hoane, M.R. **Undergraduate Research at the Capital Day**, Raleigh, NC, April 2003.
4. Fixing the damaged brain: Vita-nutrient and stem cell therapies. **ECU Department of Biology Seminar Series**, Greenville, NC, September 25, 2003.
5. Transplantation of neuronal and glial precursors dramatically improves sensorimotor function but not cognitive function in the traumatically injured brain. Becerra, D., Shank, E.J., Tatko, L.M., Pak, E.S., Murashov, A.K., & Hoane, M.R. **Selected as a finalist for the Student Oral Competition at The National Neurotrauma Symposium**, 2003, Biloxi, MS.
6. Fixing the damaged brain: Vita-nutrient and stem cell therapies. **East Carolina Neuroscience Symposium**, Greenville, NC, October 25, 2003.
7. Vita-nutrient therapies and brain injury. **Neuroscience Symposium Series**, Greenville, NC, May 8, 2005.
8. The development of vitamin B3 as a treatment for TBI: Contributions of undergraduate neuroscience majors. **Psi Chi Colloquium, Department of Psychology**, Mount Union College, OH, October 21, 2005
9. The preclinical development of nicotinamide for the treatment of the traumatically injured brain. **Neurology Research Seminar, Duke University School of Medicine**, Durham, NC, November 29, 2005.

10. Recovery of function following traumatic brain injury: Preclinical assessment of nicotinamide. **Behavioral Neuroscience Lecture Series, Texas Christian University**, Fort Worth, TX, September 17th, 2007.
11. The preclinical evaluation of a novel neuroprotectant in the traumatically injured brain. **Cognitive and Behavioral Sciences Lecture Series, Illinois State University**, Normal, IL, September 28th, 2007.
12. The Translational Neuroscience of Nicotinamide: Behavior to Genomics. **SCoBirc Seminar Series**, University of Kentucky, KY, February 2009.
13. Translational neuroscience of nicotinamide for the treatment of traumatic brain injuries. **SIU-SOM Dept. of Physiology Seminar Series**, SIU-C, IL, September 2009.
14. The translational neuroscience of traumatic brain injury: The role of the undergraduate researcher. **Neuroscience Symposium Series**, Baldwin Wallace College, January, 2011.
15. The war on terror: Traumatic brain injuries and the laboratory rat. **83rd Annual Midwestern Psychological Association Meeting**, Chicago, IL, May. 2011.
16. Invited Symposium: Brain Plasticity and Behavior. The effects of a novel cognitive rehabilitation program on functional outcome following TBI: A model for neuroplasticity. **84rd Annual Midwestern Psychological Association Meeting**, Chicago, IL, May. 2012.
17. Traumatic Brain Injury and Nicotinamide Pharmacotherapy. **Field Neuroscience Institute Neurosurgical Grand Rounds**, Saginaw, MI, May 11th, 2012.
18. The Role of Mg²⁺ in CNS dysfunction and cognitive performance. **13th International Magnesium Symposium**, Merida, Mexico, October 19th, 2012.
19. Translational Neuroscience: TBI, Neuroprotection and Recovery of Function, **Neuroscience Symposium Series**, East Carolina University, Greenville, NC, January 28th, 2013.
20. Translationa Neuroscience in a Psychology Department: Brain Injury, Neuroprotection, and Recovery of Function. **Neuroscience Symposium Series**, University of Texas-Arlington, February 25th, 2013.
21. Translational Neuroscience: TBI, Neuroprotection and Recovery of Function, **Neuroscience Symposium Series**, Central Michigan University School of Medicine, Mt. Pleasant, MI, June 28th, 2013.
22. Pharmacological Optimization of Multi-drug therapy in TBI, **2013 National Neurotrauma Symposium**, Nashville, TN Aug 6th, 2013.
23. Experimental Analysis of Behavior and Animal Models of Traumatic Brain Injury. **Association for Behavioral Analysis Conference**. Panel Chair/Disscusant. Chicago, IL, May 23, 2014.
24. Functional Assessment of the Rodent Frontal Cortex Following TBI. Executive Function After Experimental and Clinical TBI session, 2015 **National Neurotrauma Symposium**, June, 2015, Sante Fe, NM.
25. Traumatic Brain Injury and the Undergraduate Researcher, 2018, **Illinois Junior Science and Humanities Symposium**, Carbonale, IL.
26. TCU Department of Psychology 60th Anniversary Talk, 09/07/2019, **TCU Dept of Psychology**, Fort Worth, TX.

27. Traumatic Brain Injuries, 12/05/2022, **School of Neuroscience, Virginia Tech University**, Blacksburg, VA.

CONFERENCE PRESENTATIONS

Bold = Undergraduate Co-author

Bold = Graduate Co-author

1. Saponjic, R.M., Hoane, M.R., Barbay, H.S., & Barth, T.M. The effects of scopolamine on recovery of function following cortical injury. Society for Neuroscience, 1993, Washington, D.C.
2. Hoane, M.R. The effects of scopolamine on recovery of function following caudal-forelimb lesions in the rat. Psi Chi Conference, 1994, Fort Worth, TX.
3. Saponjic, R.M., Hoane, M.R., Barbay, S., & Barth, T.M. Effects of scopolamine and MK-801 on recovery of function following sensorimotor cortex lesions in the rat. Society for Neuroscience, 1994, Miami, FL.
4. Hoane, M.R., & Barth, T.M. Noncompetitive NMDA antagonists and antioxidant drugs facilitate behavioral recovery following electrolytic lesions of the rat cortex. Society for Neuroscience, 1994, Miami, FL.
5. Hoane, M.R. The effects of magnesium chloride on recovery of function in the rat. Psi Chi Conference, 1995, Fort Worth, TX.
6. Saponjic, R.M., Hoane, M.R., Irish, S.L., & Barbay, H.S. The effect of MK-801 and scopolamine on behavior and cortical neuronal survival following unilateral lesions of the sensorimotor cortex of the rat. Society for Neuroscience, 1995, San Diego, CA.
7. Hoane, M.R., **Raad, C.**, & Barth, T.M. Large lesions of the sensorimotor cortex produce “permanent” impairments in untreated rats and transient impairments in rats treated with MK-801, MgCl₂, or PBN. Society for Neuroscience, 1995, San Diego, CA.
8. Hoane, M.R., & Barth, T.M. Does the onset of behavioral testing affect the efficacy of magnesium chloride to promote recovery following cortical lesions in the rat. Society for Neuroscience, 1996, Washington, D.C.
9. **Hart, C.L.**, Hoane, M.R., & Barth, T.M. Recovery from locomotor placing deficits following unilateral cortical lesions in the rat: A floor effect. Society for Neuroscience, 1996, Washington, D.C.
10. Hoane, M.R., **Tramonte, J.J.**, **Wright, A.J.**, **Raad, C.**, & Barth, T.M. Magnesium chloride and PBN can induce recovery of function when none is expected in rats with large lesions of the sensorimotor cortex. Neurotrauma Society Symposium, 1996, Washington, D.C.
11. Hoane, M.R., Plone, M.A., Cain, C.K., Liu, H., Blaney, T.J., Frydel, B., Emerich, D.F., & Lindner, M.D. Akinesia/Bradykinesia, rigidity, tremor and cognitive deficits in young and middle-aged rats with partial bilateral dopamine depletions of the ventrolateral striatum. Society for Neuroscience, 1997, New Orleans, LA.
12. Saydoff, J.A., Hoane, M.R., Blaney, T.J., & Hu, Z-Y. Conantokin G protects striatal gabaergic and cholinergic neurons in a model of Huntington’s disease. Society for Neuroscience, 1997, New Orleans, LA.

13. Puri, K.D., Gulwadi, A.G., Stabila, P., Ferland, P., Ahmed, A., Xu, L., Zhao, H., Bruhn, S., Frydel, B., Devaux, B., Hoane, M.R., Lindner, M.D., Phillips, H., & Tao, W. Neuroprotection by recombinant neurturin (NTN) delivered by encapsulated genetically engineered fibroblast cell line. Society for Neuroscience, 1998, Los Angeles, CA.
14. Hoane, M.R., Gulwadi, A.G., Blaney, T.J., Handy, J.T., Devaux, B., Lindner, M.D., Tao, W., & Phillips, H.S. Evaluation of the biological activity and potential adverse effects of chronic intraventricular infusions of neurturin in the rat. Neurotrauma Society Symposium, 1998, Los Angeles, CA.
15. Hoane, M.R., **Knott, A.A.**, & Means, L.W. The effects of magnesium chloride on recovery of function following bilateral cingulate cortex lesions in the rat. Neurotrauma Society Symposium, 2000, New Orleans, LA.
16. **Watson, N.P.**, Means, L.W., **Aguilano, M.A.**, Johnson, S.C., & Hoane, M.R. Hippocampal lesions impair positive patterning go no-go performance when stimuli are presented successively. Society for Neuroscience, 2000, New Orleans, LA.
17. **Knotts, A.A.**, Akstulewicz, S., **Acquilano, M.**, Means, L.W., & Hoane, M.R. The behavioral effects of magnesium therapy on recovery of function following bilateral medial prefrontal cortex lesions in the rat. ECU Neuroscience Symposium, 2000, Greenville, NC.
18. Hoane, M.R., **Wickham, S.R.**, **Lasley, L.**, **Lucas, K.**, **Wolyniak, J.**, & Akstulewicz, S.L. The evaluation of novel therapies for the treatment of traumatic brain injury using the cortical contusion injury model in rats. ECU Neuroscience Symposium, 2001, Greenville, NC.
19. Means, L.W., Akstulewicz, S.L., **Jordan, A.L.**, & Hoane, M.R. Preoperative overtraining on a spatial task does not appear to improve retention in rats with hippocampal lesions. ECU Neuroscience Symposium, 2001, Greenville, NC.
20. Hoane, M.R., Smith, A.B., **Murphree, M.A.**, **Wolyniak, J.G.**, & Akstulewicz, S.L. The effects of vitamin B3 administration on behavioral outcome and GFAP expression following bilateral frontal cortex contusion injuries in the rat. ECU Neuroscience Symposium, 2002, Greenville, NC.
21. **Lasley, L.A.**, Akstulewicz, S.L., & Hoane, M.R. The effect of age on sensorimotor and cognitive recovery following bilateral frontal cortex contusion injury in the rat. ECU Neuroscience Symposium, 2002, Greenville, NC.
22. Means, L.W., Akstulewicz, S.L., **Walker, D.W.**, & Hoane, M.R. Preoperative overtraining does not reduce postoperative retention deficits on a spatial task in rats sustaining large hippocampal lesions. Society for Neuroscience, 2002, Orlando, FL.
23. Hoane, M.R. & Akstulewicz, S.L. The effects of vitamin B₃ (nicotinamide) on behavioral outcome following bilateral frontal cortex contusion injury in the rat. NINTS, 2002, Tampa, FL.
24. **Lasley, L.A.**, Akstulewicz, S.L., & Hoane, M.R. The effect of age on sensorimotor and cognitive recovery following bilateral frontal cortex contusion injury in the rat. NINTS, 2002, Tampa, FL.
25. **Smith, A.B.**, Akstulewicz, S.L., & Hoane, M.R. The effects of a combination therapy of magnesium and riboflavin on traumatic brain injury. First Annual ECU Undergraduate Research Symposium, 2003, Greenville, NC.

26. **Gilbert, D.**, Akstulewicz, S.L., & Hoane, M.R. The effects of 2-PMPA, a glutamate release inhibitor, on behavioral outcome following traumatic brain injury. First Annual ECU Undergraduate Research Symposium, 2003, Greenville, NC.
27. **Wolyniak, J.G.**, Akstulewicz, S.L., & Hoane, M.R. Administration of riboflavin improves behavioral outcome and reduces edema formation and GFAP expression following traumatic brain injury. First Annual ECU Undergraduate Research Symposium, 2003, Greenville, NC.
28. **Kaplan, S.**, Akstulewicz, S.L., & Hoane, M.R. The effects of dietary magnesium on traumatic brain injury. First Annual ECU Undergraduate Research Symposium, 2003, Greenville, NC.
29. **Becerra, D., Shank, E.J., Tatko, L.M.**, Pak, E.S., Murashov, A.K., & Hoane, M.R. The effects of murine embryonic stem cell transplantation in a model of traumatic brain injury in the rat. First Annual ECU Undergraduate Research Symposium, 2003, Greenville, NC.
30. **Tatko, L.M., Becerra, D.**, Pak, E.S., **Shank, E.J.**, Smith, M., Hoane, M.R., & Murashov, A.K. Embryonic stem cells are able to differentiate and integrate into host tissue when injected into the traumatically injured brain. ECU Neuroscience Symposium, 2003, Greenville, NC.
31. **Green, R.S., Tatko, L.M.**, Akstulewicz, S.A., Pak, E.S., Murashov, A.K., & Hoane, M.R. Transplantation of neuronal and glial precursors mediate behavioral recovery in rat model of huntington's disease. ECU Neuroscience Symposium, 2003, Greenville, NC.
32. Watkins, C., Ward, R., Henry, B., Jacobs, E. A., Smith, D.C., & Hoane, M.R. The effects of lesioning the orbital prefrontal cortex on sensitivity to temporally extended consequences in rats. Poster presented at the annual meeting of the Association for Behavior Analysis, 2005, Chicago, IL.
33. Hoane, M.R. Embryonic stem cells differentiated into GABAergic neurons improve sensorimotor function after transplantation into the traumatically injured brain, Midwest Psychological Association, 2005, Chicago, IL.
34. Bell, T.P., Smith, D.C., Jacobs, E.A., Hoane, M.R., & Jensen, R.A. Effects of vagus nerve stimulation on anxiety in rats. Society for Neuroscience, 2005, Washington, DC.
35. **Holland, M.A.**, & Hoane, M.R. Acute neuroprotective effects of nicotinamide treatment in the traumatically injured brain. SIU Undergraduate Research Forum, 2006, Carbondale, IL.
36. **Pierce, J.L.**, & Hoane, M.R. The window of opportunity for nicotinamide treatment following cortical contusion injury in the rat. SIU Undergraduate Research Forum, 2006, Carbondale, IL.
37. Hoane, M.R. Nicotinamide reduces behavioral impairments and provides cortical protections following fluid percussion injury in the rat. Midwest Psychological Association, 2006, Chicago, IL.
38. **Holland, M.A.**, & Hoane, M.R. Acute neuroprotection in the traumatically injured brain by nicotinamide treatment, 2006, SIU Neuroscience retreat, Shelbyville, IL.

39. Hoane, M.R. Restorative Neuroscience Lab: Stem cells, SERMS and vita-nutrients for the treatment of brain injuries and diseases, 2006, SIU Neuroscience retreat, Shelbyville, IL.
40. **Pierce, J.L., Holland, M.A.,** Anderson, G.D., & Hoane, M.R. Nicotinamide treatment induces recovery when administered up to 4 hours post-tbi in the rat. Invited Student Oral Presentation, National Neurotrauma Symposium, 2006, St. Louis, MO.
41. **Pierce, J.L.,** & Hoane, M.R. The preclinical efficacy testing of COG1410 improves sensorimotor performance and reduces injury magnitude following cortical contusion injury, 2007, St. Louis Area Undergraduate Research Symposium, St. Louis, MO.
42. **Pierce, J.L.,** & Hoane, M.R. The novel apolipoprotein E-based peptide COG1410 in a rat model of traumatic brain injury, 2007, SIU Undergraduate Research Forum, Carbondale, IL.
43. Hoane, M.R. Nicotinamide and Traumatic Brain Injury. 2007, Illinoisy Data Conference, Normal, IL.
44. **Goffus, A.M.,** & Hoane, M.R. Chronic administration of nicotinamide dramatically improves and facilitates sensorimotor recovery in the traumatically injured brain. 2007, Illinoisy Data Conference, Normal, IL.
45. **Kuypers, N.** & Hoane, M.R. Investigation into the effectiveness of pyridoxine (vitamin B6) administration on behavioral and anatomical outcome following unilateral CCI, 2008, SIU Undergraduate Research Forum, Carbondale, IL.
46. **Birky, N.** & Hoane, M.R. Modeling PTSD in an animal model of TBI, 2008, SIU Undergraduate Research Forum, Carbondale, IL.
47. Hoane, M.R. The utilization of embryonic stem cell transplants to improve recovery of function in the traumatically injured brain, 2008, Illinoisy Data Conference, Carbondale, IL.
48. **Quigley, A.,** Tan, A.A., & Hoane, M.R. The effects of hypertonic saline and nicotinamide on behavioral and cognitive function following cortical contusion injury, 2008, Illinoisy Data Conference, Carbondale, IL.
49. Young, M.E., Clark, M.H., **Goffus, A.,** & Hoane, M.R. Mixed effects modeling of Morris water maze learning, 2008, Comparative Cognition and Learning, Chicago, IL.
50. **Carlson, J.M.,** Hoane, M.R., & Reinke, K. Subliminal fearful faces enhances contralateral occipital activity for visual targets within the spotlight of attention, 2008, Society for Neuroscience Annual Meeting. Washington, DC.
51. **Peruzzaro, S.T., Ward, P.R., Wood, R.K.,** Hoane, M.R., & Smith, J.S. The impact of enriched environment and transplantation of neuronal and glial precursors on recovery from controlled cortical contusion injury, November 2008, Faculty for Undergraduate Neuroscience Meeting, Washington, DC.
52. **Heck, S.,** & Hoane, M.R. McTBI: Does a fast food diet worsen behavioral outcome following traumatic brain injury?, April 2009, 2009 REACH Undergraduate Research Forum, Carbondale, IL.
53. **Heck, S.,** & Hoane, M.R. McTBI: Does a fast food diet worsen behavioral outcome following traumatic brain injury?, April 2009, StLaurs 2009 Undergraduate Research Conference, St. Louis, MO.

54. **Swan, A.**, & Hoane, M.R., Aging and the Preclinical Efficacy of Nicotinamide in the Treatment of Traumatic Brain Injury. 2009, Illinois Data Conference, Edwardsville, IL.
55. Hoane, M.R. McTBI: A fast food diet worsens behavioral outcome following traumatic brain injury. 2009, Illinois Data Conference, Edwardsville, IL.
56. **Swan, A.**, & Hoane, M.R., Aging and the Preclinical Efficacy of Nicotinamide in the Treatment of Traumatic Brain Injury. 2009, Society for Neuroscience, Chicago, IL.
57. Hoane, M.R., **Hutsell, B.**, **Birky, N.**, & Kaufman, N. Assessment of social aggression and PTSD following frontal cortical contusions in the rat. 2010, National Neurotrauma Symposium, Las Vegas, NV
58. Anderson, G.D., **Swan, A.**, Beyer, R.P., Farin, F.M., Bammler, T.K., Kantor, E.D., & Hoane, M.R. Effect of multiple dose progesterone treatment on gene expression in traumatic brain injury (TBI). 2010, National Neurotrauma Symposium, Las Vegas, NV
59. **Martens, K.M.**, **Vonder Haar, C.**, **Hutsell, B.**, **Swan, A.**, & Hoane, M.R. The evaluation of simple odor discrimination task as a novel method of testing cognitive outcome in rodent models of TBI. 2010, National Neurotrauma Symposium, Las Vegas, NV
60. **Vonder Haar, C.**, Anderson, G.D., & Hoane, M.R. The preclinical efficacy of nicotinamide: The use of continuous infusion to obtain a clinically relevant steady-state after TBI. 2010, National Neurotrauma Symposium, Las Vegas, NV
61. **Swan, A.A.**, **Chandrashekar, Vonder Haar, C.**, & Hoane, M.R. The longitudinal assessment of nicotinamide, a novel neuroprotectant, on functional recovery following TBI. 2010, National Neurotrauma Symposium, Las Vegas, NV
62. Hoane, M.R. The evaluation of post traumatic stress disorder (PTSD) following traumatic brain injury in the rat. 2010, 5th Biennial Southern Illinois Region Neuroscience Retreat, Collinsville, IL.
63. **Swan, A.A.**, & Hoane, M.R. Cognitive training in a middle-aged model of traumatic brain injury. 2010, 5th Biennial Southern Illinois Region Neuroscience Retreat, Collinsville, IL.
64. **Vonder Haar, C.**, & Hoane, M.R. The effect of continuous nicotinimide administration on recovery from traumatic brain injury in rats. 2010, 5th Biennial Southern Illinois Region Neuroscience Retreat, Collinsville, IL.
65. **Swan, A.A.**, & Hoane, M.R. Cognitive training and functional recovery in middle-aged animals following traumatic brain injury. 2010, Society for Neuroscience Meeting, San Diego, CA.
66. **Vonder Haar, C.**, & Hoane, M.R. Perseverance as a measure of search strategy in the Morris water maze following traumatic brain injury. 2010, Society for Neuroscience Meeting, San Diego, CA.
67. **Clayton, E.**, & Hoane, M.R. The effects of a pre-treatment regimen of nicotinimide on functional recovery following TBI in the rat. 2011 REACH Undergraduate Research Forum, Carbondale, IL.
68. **Emery, M.**, & Hoane, M.R. The effects of folic acid on recovery of function following TBI in the rat. 2011 REACH Undergraduate Research Forum, Carbondale, IL.

69. **Peterson, T., Ward, J., Logue, M.,** Anderson, G.A., & Hoane, M.R. An evaluation of the neuroprotective effects of progesterone and nicotinamide on functional recovery following cortical contusion injury in the rat. 2011 National Neurotrauma Symposium, Ft. Lauderdale, FL.
70. **Bunton, A.M., Clayton, E.R.,** & Hoane, M.R. The functional recovery effects of nicotinimide treatment prior to traumatic brain injury. 2011 National Neurotrauma Symposium, Ft. Lauderdale, FL.
71. **Vonder Haar, C., Emery, M.,** & Hoane, M.R. Chronic folic acid administration does not improve recovery of function in either a low or a high dose following unilateral controlled cortical impact injury. 2011 National Neurotrauma Symposium, Ft. Lauderdale, FL.
72. **Martens, K.M., Vonder Haar, C.,** & Hoane, M.R. Additional options for behavioral testing in rodent models of TBI: A simple discrimination task used as a novel method of testing decision-making behavior. 2011 National Neurotrauma Symposium, Ft. Lauderdale, FL.
73. **Swan, A.A.,** & Hoane, M.R. Never too late to learn: Cognitive training improves functional recovery of cognitive behaviors following traumatic brain injury in the aged rats. 2011 National Neurotrauma Symposium, Ft. Lauderdale, FL.
74. Anderson, G.D., Beyer, R.P., Farin, F.M., Bammler, T.K., Kantor, E.D., & Hoane, M.R. Gene expression in brain and liver after nicotinimide treatment following traumatic brain injury (TBI). 2011 National Neurotrauma Symposium, Ft. Lauderdale, FL.
75. **Vonder Haar, C., Emery, M.,** & Hoane, M.R. Low dose folic acid administration does not contribute to recovery, while high dose administration causes larger deficits after TBI. 2011, Illinois Data Conference, Carbondale, IL.
76. **Martens, K.M.,** & Hoane, M.R. Additional options for behavioral testing in rodent models of TBI: A simple discrimination task used as a novel method of testing decision-making behavior. 2011, Illinois Data Conference, Carbondale, IL.
77. **Bunton, A.M., Clayton, E.R.,** & Hoane, M.R. The functional recovery effects of nicotinimide treatment prior to TBI. Illinois Data Conference, Carbondale, IL.
78. Anderson, G.D., Farin, F.M., Bammler, TK, Beyer, R.P, & Hoane, M.R. Gene expression of hepatic metabolizing enzymes and transporters in a traumatic brain injury (TBI) rodent model. 2011, North American International Society for the Study of Xenobiotics meeting, Atlanta, GA.
79. Gallagher, J., Dunkerson, J., Fluharty, S., Mudd, D., Hoane, M.R., & Smith, J.S. The impact of enriched environment and transplantation of neuronal and glial precursors on recovery from controlled cortical contusion injury. 2011, Society for Neuroscience Meeting, Washington, DC.
80. **Martens, K.M., Vonder Haar, C., Smith, T.R.,** & Hoane, M.R. Critically evaluating the use of scent discrimination following traumatic brain injury: Validation of a simple discrimination task for assessing decision-making behavior within an operant paradigm. 2011, Society for Neuroscience Meeting, Washington, DC.
81. **Vonder Haar, C., Martens, K.M.,** & Hoane, M.R. The initial beneficial effects conferred by nicotinimide treatment may be offset by aging: The results from a

- longitudinal assessment of frontal injury. 2011 Society for Neuroscience Meeting, Washington, DC.
82. Anderson, G.D., Kantor, E.D., & Hoane, M.R. Optimization of erythropoietin and anakinra dosing for a preclinical model of TBI. 2011, 65th Annual Meeting of the American Epilepsy Society, Baltimore, MD.
 83. Vitek, M.P., Hoane, M.R., Laskowitz, D.T., Dawson, H.N., VanNostrand, W.E., Christensen, D., Li, F., & Colton, C.A. Neuroprotective and anti-inflammatory therapeutics for traumatic brain injury and Alzheimer's disease based upon apolipoprotein-E. 2012 Keystone Symposia on Molecular and Cellular Biology, Keystone, CO.
 84. **Hann, D.**, & Hoane, M.R. Does PTSD worsen functional recovery after TBI? 2012 REACH Undergraduate Research Forum, Carbondale, IL.
 85. **Martens, K.M.**, & Hoane, M.R. Behavioral tasks for assessing cognitive functioning after injury: A comparative study. 2012 National Neurotrauma Symposium, Phoenix, AZ.
 86. **Peterson, T.C.**, Moore, L.H., & Hoane, M.R. Behavioral characterization of fluid percussion injury to the sensorimotor cortex. 2012 National Neurotrauma Symposium, Phoenix, AZ.
 87. **Vonder Haar, C., Peterson, T.C., Greeney, D., Jannings, A.**, Anderson, G.D., & Hoane, M.R. A comparison of two anti-inflammatory drugs, epoetin alpha and anakinra for treatment after TBI. 2012 National Neurotrauma Symposium, Phoenix, AZ.
 88. **Martens, K.**, & Hoane, M.R. Behavioral tasks for assessing cognitive functioning after brain injury. 2012, SIU Neuroscience Retreat.
 89. **Amanda, W.**, & Hoane, M.R. Assessment of cognitive rehabilitation following bilateral frontal traumatic brain injury in rats. 2012, SIU Neuroscience Retreat.
 90. **Peterson, T.**, & Hoane, M.R. Behavioral and histological comparison of a fluid percussion injury or cortical contusion injury to the rat sensorimotor cortex. 2012, SIU Neuroscience Retreat.
 91. **Vonder Haar, C.** & Hoane, M.R. Bilateral frontal brain injuries impair performance on simple tone discriminations in the rat. 2012, SIU Neuroscience Retreat.
 92. **Vonder Haar, C., Smith, T.R., French E.J., Martens, K.M.**, Jacobs, E.A., & Hoane, M.R. Deficits in two-choice discrimination following bilateral controlled cortical impact injury in the rat. 2012 Society for Neuroscience Meeting, New Orleans, LA.
 93. **Peterson, T.C.**, Moore, L.H., **Maass, W.**, & Hoane, M.R. Behavioral and histological comparison of fluid percussion injury and cortical contusion injury to the rat sensorimotor cortex. 2012 Society for Neuroscience Meeting, New Orleans, LA.
 94. Anderson, G.D., **Vonder Haar, C.**, Farin, F.M., Bammler, T.K., Beyer, R.P., Kantor, E.D., & Hoane, M.R. Gene expression in brain after erythropoietin and anakinra treatment in a traumatic brain injury model. 2012, 66th Annual Meeting of the American Epilepsy Society, San Diego, CA.
 95. **Peterson, T.C., McConomy, K.S., Moore, L.H., Wright, A.M.**, Kantor, E.D., Anderson, G.D., Hoane, M.R. A combination therapy of nicotinamide and

- progesterone for functional recovery following traumatic brain injury. 2013. National Neurotrauma Symposium, Nashville, TN.
96. **Vonder Haar, C., Maass, W.B.,** Jacobs, E.A. & Hoane, M.R. A characterization of cognitive impairments after frontal traumatic brain injury: Discrimination and motivation deficits can be improved by administration of nicotinamide. 2013 National Neurotrauma Symposium, Nashville, TN.
 97. Wright, A.M. & Hoane, M.R. Assessment of Cognitive Rehabilitation Following Bilateral Frontal Traumatic Brain Injury in Rats. 2013 National Neurotrauma Society, Nashville, TN.
 98. **Elmore, B.E., Vonder Haar, C., Wright, A.M.,** Anderson, G.D., Moore, L.H., Farin, F.M., Bammler, T.K., Beyer, R.P., MacDonald, J.W., Kantor, E.D., Hoane, M.R. (2013). Preclinical treatments for traumatic brain injury: An evaluation of minocycline and simvastatin. 2013 National Neurotrauma Symposium, Nashville, TN.
 99. **Vonder Haar, C.,** Jacobs, E.A. & Hoane, M.R. Deficits in visual discrimination following frontal traumatic brain injury are associated with deficits in motivation, but not motor ability. 2013 Society for Neuroscience meeting in, San Diego, CA.
 100. **Smith, T. R., Frve, C. C. J., Peterson, T., Elmore, B.,** Hoane, M., & Jacobs, E. A. (October, 2013). Effects of Lesions to the Core of the Nucleus Accumbens on Concurrent Schedule Performances. 2013 Mid-American Association for Behavioral Analysis Meeting, Milwaukee, WI.
 101. **Elmore, B.E.,** Anderson, G.D., **Wright, A.M.,** Kantor, E.D., & Hoane, M.R. A comparative evaluation of memantine and topiramate: No evidence of functional recovery following TBI. 2014. National Neurotrauma Symposium, San Francisco, CA.
 102. **Elmore, B.E.,** Anderson, G.D., Kantor, E.D., Farin, F.M., Bammler, T., MacDonald, J.W., & Hoane, M.R. The effect of levetiracetam treatment on gene expression and functional behavior using a controlled cortical impact model of traumatic brain injury. 2014 Society for Neuroscience Meeting, Washington, DC.
 103. **Young, J.M.,** & Hoane, M.R. The use of the dig task to explore the effectiveness of magnesium on the recovery of function after traumatic brain injury. 2015 Society for Neuroscience Meeting, Chicago, IL.
 104. Hoane, M.R. Functional Assessment of the Rodent Frontal Cortex Following TBI. Executive Function After Experimental and Clinical TBI session, 2015 National Neurotrauma Symposium, June, 2015, Sante Fe, NM.
 105. **Young, J.M.,** & Hoane, M.R., Examination of emotional regulation in rats with TBI using a conditioned suppression model, Society for Neuroscience, November 2016.
 106. **Young, J.M.,** & Hoane, M.R., The use of the dig task to explore the effectiveness of magnesium on recovery of function after traumatic brain injury, National Neurotrauma Symposium, July 2016
 107. Hoane, M.R., The effects of age on functional recovery following TBI. APA convention, August, 2022.

TEACHING EXPERIENCE

Augusta University, Augusta, GA

Department of Psychological Sciences

Full Professor with tenure, 2018-presentSouthern Illinois University, Carbondale, IL

Department of Psychology

Full Professor with tenure, Summer, 2012 to present**Associate Professor with tenure**, Summer 2008 to Spring 2012**Assistant Professor**, Fall 2004 to Summer 2008

Southern Illinois University School of Medicine

Department of Community and Family Medicine

Adjunct Assistant Professor, Fall 2004 to presentEast Carolina University, Greenville, NC

Department of Psychology

Assistant Professor, Fall 2001 to Summer 2004**Visiting Assistant Professor**, Fall 1999 to Summer 2001.Texas Christian University, Fort Worth, TX

Department of Psychology

Lecturer, Laboratory Supervisor, and Teaching Assistant, (1992-1996)**COURSES TAUGHT**

(Typical teaching load is 2 courses/semester)

Graduate Courses

PSYC 514 Principles of Behavior (Graduate Neuroscience)

PSYC 518 Psychopharmacology & Behavior

PSYC 489-001 Neuroglia

PSYC 489-003 Advanced Neuroscience

PSYC 489-003 Medical Neuroscience

PSYC 6412 Advanced Physiological Psychology

PSYC 6320 Behavioral Pharmacology Seminar

PSYC 6315 Behavioral Neuroscience: Lab and Literature (Team taught)

NEUR 5001 Integrative and Behavioral Neuroscience (Team taught)

NEUR 5000 Cellular and Molecular Neuroscience (Team taught)

PSYC 416 Recovery of Function

PSYC 6180 Behavioral Neuroscience

Undergraduate Courses

PSYC 402 Psychology & Medicine

PSYC 302 Introduction to Neuroscience

PSYC 415 Psychopharmacology

PSYC 489 Neuroscience of Disease

PSYC 1000 Introduction to Psychology

PSYC 2101 Psychological Statistics w/Lab

PSYC 3310 Introduction to Neuroscience

PSYC 3225 Learning
PSYC 4340 Behavioral Pharmacology
PSYC 4315 Behavioral Neuroscience: Lab and Literature (Team taught)
PSYC 4180 Behavioral Neuroscience
PSYC 3180 Drugs and Society

6.2

GRADUATE THESIS SUPERVISIONS (Chair)

██████████ M.S. Thesis. (2003)
██████████ M.S. Thesis (2004)
██████████ M.A. Thesis (2008)
██████████ M.A. Thesis (2010)
██████████ M.A. Thesis (2010)
██████████ M.A. Thesis (2012)
██████████ M.A. (2014)
██████████ M.A. (2016)
██████████ M.S. (2020)
██████████ M.S. (2021)
██████████ M.S. (2023)

██████████ Dissertation (2009)
██████████ Dissertation (2010)
██████████ Dissertation (2011)
██████████ Dissertation (2012)
██████████ Dissertation (2013)
██████████ Dissertation (2013)
██████████ Dissertation (2019)
██████████ Dissertation (2023 expected)

GRADUATE THESIS SUPERVISIONS (Committee Membership)

██████████ M.S. Thesis (2007)
██████████ M.S. Thesis (2008)
██████████ M.S. Thesis (2017 expected)
██████████ M.S. Thesis (2017 expected)
██████████ M.S. Thesis (2017 expected)

██████████ Dissertation. (2005)
██████████ Dissertation. (2006)
██████████ Dissertation (2008)
██████████ Philosophy Dissertation (2008)
██████████ Dissertation (2010)
██████████ (2014)

██████████ (2022)

██████████ (2022)

UNDERGRADUATE THESIS SUPERVISIONS

██████████ The effects of magnesium chloride on recovery of function following bilateral cingulate cortex lesions in the rat. (Graduation, May 2001)

██████████ Magnesium and vitamin B₂ combination therapy following a cortical contusion injury in the rat. (Graduation, May 2003). **Honors Project**

██████████ The effects of raloxifene in an animal model of Parkinson's disease. (Graduation, May 2004). **Honors Project**

██████████ The effect of magnesium deficiency on functional outcome in an animal model of Parkinson's disease. (Graduation, May 2004).

██████████ Transplantation of GABAergic neurons but not astrocytes induces recovery of sensorimotor function in the traumatically injured brain. (Graduation, May 2005). **Honors Project**

██████████ The effect of vitamin B₃ on blood brain barrier integrity following TBI. (Graduation, May 2005). **Honors Project**

██████████ The effect of nicotinamide on the progression of apoptosis following TBI. (Graduation, May 2005). **Honors Project**

██████████ The effect of vitamin B₃ on the formation of cerebral edema following TBI in the rat. (Graduation, May 2005). **Honors Project**

██████████ Nicotinamide treatment provides acute neuroprotection and GFAP regulation in the brain following fluid percussion injury. (Graduation, May 2006). Senior Project

██████████ Nicotinamide as a biomarker for TBI. (Graduation, May 2008).

Departmental Honors Project

██████████ Vitamin B₆ and TBI. (Graduation, May 2008). **Departmental Honors Project**

██████████ McTBI: The effects of a fast food diet on outcome from TBI. (Graduation, May 2010). **University REACH Project.**

██████████ Folic acid treatment for TBI. (Graduation, December, 2010).

██████████ Pre-operative NAM and TBI. (Graduation, May 2011). **Departmental Honors Project**

██████████ Investigating the relationship between TBI and PTSD in a rodent model. (Graduation, May 2012). **REACH and senior Physiology Project**

██████████ The effect of daidzein on recovery of function following TBI. **Senior Thesis.**

██████████ The effect of tianeptine on ventricular enlargement following TBI. (Graduation, May 2021). **Augusta University Honors Thesis.**

██████████ The effect of frontal TBI on a pain-related behavioral depression test in mice. (Graduation, December 2022). **Augusta University Honors Thesis.**

PROFESSIONAL AFFILIATIONS

National Neurotrauma Society
Society for Neuroscience
Sigma Xi
Midwest Psychological Association
International Behavioral Neuroscience Association
Faculty for Undergraduate Neuroscience

6.2

HONOR SOCIETIES

Psi Chi; Member since 1993
Sigma Xi; Member since 1993

STUDENT AWARDS

A graduate student (██████████) was selected to be a finalist for the 2013 Goldberger Behavioral Neuroscience Prize Presented by the National Neurotrauma Society at their 2013 meeting.

An undergraduate student (██████████) won 1st place in the poster competition at the 2007 St. Louis Area Undergraduate Research Symposium.

LaVonne A. Straub Annual Student Research Award. Awarded to Jeremy Pierce. October 2006.

An undergraduate student (██████████) was selected as a finalist for the 2006 Goldberger Behavioral Neuroscience Prize Presented by the National Neurotrauma Society.

An undergraduate student (██████████) was awarded the 2003 Goldberger Behavioral Neuroscience Prize Presented by the National Neurotrauma Society at their 2003 meeting.

PROFESSIONAL SERVICE

Journal Editorship

Editorial Advisory Boards

The Open Critical Care Medicine Journal (2007 – present)
Oxidative Medicine and Cellular Longevity (2008 – present)
Open Journal of Neuroscience (2009 – present)

Ad hoc Journal Reviewer

Synapse
Experimental Neurology
Experimental Brain Research
Physiology & Behavior
Brain Research
Brain Research Bulletin
Behavioural Brain Research
Journal of the American College of Nutrition
Neuroscience Letters
Journal of Neuroscience

Molecular Medicine
 Journal of Neurotrauma
 European Journal of Clinical Nutrition
 Nature Protocols
 Stem Cell
 Neuroscience Research
 The Open Critical Care Medicine Journal
 Neurotherapeutics
 Neurorehabilitation and Neural Repair
 BMC Neuroscience
 Developmental Neuroscience
 Journal of Neurological Sciences
 Brazilian Journal of Medical and Biological Research
 CNS Drugs
 Journal of Medicinal Food
 PLoS ONE
 Frontiers in Neurology - Neurotrauma

6.2

Grant Review Service

Ad Hoc Chair

USAMRMC PTSD and TBI Research Program, Nov., 2007
 Rehabilitation and Cognitive Panel (subset)

Study Section Membership

USAMRMC PTSD and TBI Research Program, Nov., 2007
 Rehabilitation and Cognitive Panel
 USAMRMC PTSD and TBI Research Program, Dec., 2007
 Advanced Technology-Therapeutic Development: Neuro Panel
 Henry M. Jackson Foundation for Advancement of Military Science
 Blast Lethality Injury Research Program, Apr., 2008
 NYSTEM Program
 Stem Cell Therapy Panel, Oct., 2008
 DoD/CDMRP Deployment Related Medical Research Program
 Psychological Health/TBI Program Dec., 2008
 Brain, Biology, and Mind Initiate Program Review, Feb., 2009
 New Jersey Brain Injury Research Commission, Feb., 2009
 USAMRMC Study Section
 Traumatic Brain Injury Review, Feb., 2010
 New Jersey Brain Injury Research Commission, Feb., 2010
 2010 DMRDP Study Section
 Diagnosis and Treatment Study Panel-2, Apr., 2010
 VHA Rehabilitation Research & Development
 Brain Injury: TBI & Stroke Review Panel, Aug., 2010
 VHA Rehabilitation Research & Development
 Brain Injury: TBI & Stroke Review Panel, Feb, 2011

USAMRMC Study Section

Traumatic Brain Injury Review, Mar., 2012
 VHA Rehabilitation Research & Development
 Brain Injury: TBI & Stroke Review Panel, Mar, 2012
 VHA Rehabilitation Research & Development
 Brain Injury: TBI & Stroke Review Panel, Aug, 2013
 New Jersey Brain Injury Research Commission, Jan., 2014
 VHA Rehabilitation Research & Development
 Brain Injury: TBI & Stroke Review Panel, Feb., 2015
 DoD/CDMRP Deployment Related Medical Research Program
 Psychological Health/TBI Program Dec., 2019-22

Ad hoc Grant Reviewer

MRC. Pathophysiology, Neuronal Loss and Outcome, May 2007
 M.J. Murdock Charitable Trust. Stem cell, EE and TBI, Dec., 2007
 US Army Medical Research and Material Command
 DoD Intramural War Supplemental Program
 PTSD/mTBI Panel, Nov., 2008.
 DoD Military Operational Medical Research Program
 PTSD Drug Development, Dec., 2009
 USAMRMC, Preclinical TBI Treatment Review, Mar, 2010
 USAMRMC, Preclinical TBI Treatment Review, Aug, 2010
 USAMRMC, TBI Clinical Trial Review, Mar, 2011
 US Army CERDEC NVESD, Clinical Trial Review, May, 2011
 USAMRMC, Preclinical TBI Treatment Review, Aug, 2011
 VHA Merit Review: Chronic Effects of Neurotrauma, Mar, 2012
 Military Clinical Neuroscience Center of Excellence Grant Rev, Mar, 2012
 USUHS, Center for Neuroscience and Regenerative Medicine, Mar, 2012
 USUHS, Center for Neuroscience and Regenerative Medicine, Mar, 2014;
 Oct, 2015; Mar, 2017; Mar 2017

Departmental and University Service**Southern Illinois University**

Department of Psychology: Undergraduate Comm. (2004-pres)
 Department of Psychology: Grad Admissions Comm. (2005-pres)
 Department of Psychology: Research Comm. (2006-pres)
 Institutional Animal Care and Use Committee (2006-pres)
 Sigma Xi, Secretary (2008-2010)
 REACH Advisory Committee (2008-pres)
 Department of Psychology: BCS faculty search committee chair. (2009-pres)
 CoLA Council (2011-pres)
 CoLA Council Teaching and Learning Subcommittee (2011-pres)
 OSPA Web Committee (requested participation by VCR). (2011-pres)
 Secretary – Southern Illinois Chapter of Society for Neuroscience (2012-pres)
 University MCAT Curriculum Review Committee (2012-pres)

Faculty advisor for the Undergraduate Neuroscience Registered Student
Organization
CoLA P&T Committee (2014)
Special assignment for the APAA (2014)
University Intellectual Property Committee (2015-pres)
Special assignment for the V. Chancellor of Research; chair of the laboratory
animal program assessment committee (2015).

6.2

Curriculum Vitae¹

ANTHONY SKJELLUM, PhD

6.2

Expertise

High Performance Computing, Systems Software, and Scalable Simulation
Systems Engineering and Cyber Security, Blockchain Technology, Scientific Computing

Development, Advancement, Leadership, and Management of Academic Units and
Entrepreneurial Enterprises

Education

PhD: Chemical Engineering, Minor in Computer Science,
California Institute of Technology, June 1990

Dissertation: *Concurrent Dynamic Simulation: Multicomputer Algorithms Research
Applied to Ordinary Differential-Algebraic Process Systems in Chemical
Engineering*

M.S.: Chemical Engineering, California Institute of Technology, June 1985

B.S.: Physics (Honors), California Institute of Technology, June 1984

Employment

University of Tennessee, Chattanooga August 2017–present
Professor of Computer Science (Tenured) and Chair of Excellence,
Director, SimCenter – Center of Excellence in Applied Computational Science
and Engineering (A Tennessee Higher Education Commission-funded Center)

Auburn University, Department of Computer Science and Software Engineering

- Professor of Computer Science and Software Engineering (Tenured), June 2014 – August 2017.
- McCrary Eminent Scholar Endowed Chair, August 2016 – August 2017.
- Director of the Charles D. McCrary Institute for Critical Infrastructure Protection and Cyber Systems, August 2016 – August 2017.
- COLSA Corporation Cyber Security and Information Assurance Endowed Professorship,
July 2014 – August 2016.
- Auburn Lead Scientist for Cyber Research, July 2014 – August 2017.
- Director of the Auburn Cyber Research Center, July 2014 – August 2017.

¹ March 10, 2023 update

University of Alabama at Birmingham (UAB), Department of Computer and Information Sciences (now renamed to: Department of Computer Science)

- Professor and Chair, August 2003 – June 2014
- Director of UAB University-wide Research Center – CIA|JFR, 2011 – June 2014

Mississippi State University, Dept. of Computer Science, January 1993 – July 2003

- Director, NSF ERC High Performance Computing Laboratory, January 1997- July 2003
- Tenured Associate Professor, 1997
- Associate Professor, 1996
- Assistant Professor (Tenure earning), 1993

Lawrence Livermore National Laboratory, 1990-1993

- Computer Scientist (Q-cleared fulltime employee)

Entrepreneurial efforts have included these additional outside activities:

- President, MPI Software Technology, Inc, 1996-2002 (Spin-off from Mississippi State University)
- Chief Technology Officer, MPI Software Technology, Inc, 2002-2004
- Chief Software Architect, Verari Systems Software (Formerly MPI Software Tech.), 2004-2009. Verari closed it doors in 2009 during the “Great Recession.”
- Co-Founder, CTO of RunTime Computing Solutions, LLC, 2009-present. RunTime Computing acquired key software assets from Verari in 2009; it is a successful Chattanooga, TN embedded software, consulting, and services company with US and international customers, primarily in aerospace and government.

Professional Activities

External Advisory Board Member, Computer Science, Dept., Tennessee Technological University, 2022-present.

Editorial Board, *Parallel Computing*, March 1992-December 1995

Editorial Board, *The International Journal of Supercomputer Applications and High Performance Computing*, November 1993-2000

Editorial Board, *Concurrency & Communication: Practice & Experience*, 1994-present

Working Group Chair, “Persistence,” MPI-4 Standard, MPI Forum, 2013-present.

Working Group Co-chair, “Collective,” MPI-4 Standard, MPI Forum, 2017-present.

Sub-committee Chair, Message Processing Interface (MPI-3) Standards Committee, 2010-2013 (Persistent Communications Working Group),

Co-Chair, Real-Time Message Passing Interface (MPI/RT) Forum, 1997-2005.

Sub-committee Chair, BLAS Technical Forum (Lite BLAS/ BLAIS), 1995-98

Sub-committee Chair, Message Processing Interface (MPI) Standards Committee II, 1995-96 (Collective Chapter), 1995-97 (Real-Time), Persistence (2012-2019), Collective (2017-2019)

Sub-committee Chair, Message Processing Interface (MPI) Standards Committee, 1993-94

Newsletter Co-Editor (with Andrew Lumsdaine), Society of Industrial and Applied Mathematics (SIAM) Supercomputing Activity Group
 Chair, MPIDC '99, Atlanta, GA, March 9-12, 1999
 Organizing Committee of MPIDC '95 and MPIDC '96, Notre Dame, IN
 Chair, 1997 Gordon Conference on HPC/II, Plymouth, NH, July 1997
 Co-Chair, (Daniel Reed, Chair) 1995 Gordon Conference on HPC/II, Plymouth, NH, July 1995
 Co-Chair, (Jack Dongarra, Chair; Co-Chair: David Walker), 1992 Gordon Conference on HPC/II (Previous name Software Tools and Libraries for HPC), Plymouth, NH, July 1992
 Program Director, SIAM Supercomputing Activity Group, January 1994-December 1996
 Editor, *Proceedings of MPIDC '99*, March 1999
 Editor, *Proceedings of the Scalable Libraries Conference*, October 1994
 Editor, *Proceedings of the Scalable Libraries Conference*, October 1993
 Invited participant, Second Pasadena Workshop on System Software and Tools for High-Performance Computing Environments (Pasadena II), January 1995

Awards and Honors

ACM Senior Member, 2014
 IEEE Senior Member, 2013
 Mississippi Business Journal, "Top 40 Under 40 Award," January 21, 2002
 2001 Tibbetts Award Winner (MPI Software Technology, Inc) – excellence in SBIR commercialization (National Award – State of Mississippi Winner)
 College of Engineering Hearin Eminent Scholar, 2001-03
 1999 College of Engineering Outstanding Engineering Research Award
 MSU Alumni Association Research Award, May 1998
 College of Engineering Hearin-Hess Distinguished Professor, 1996-97 and 1997-98
 MSU ACM Student Chapter Computer Scientist of the Year Award, May 1994
 Best Student Paper in Operating Systems Area (First Prize) "Zipcode: A Portable Multicomputer Communications Library atop the Reactive Kernel," Fifth Distributed Memory Computing Conference, Charleston, South Carolina, April 1990
 Runner-Up Student Paper in Applications Area, A: LU Factorization of Sparse, Unsymmetric Jacobian Matrices on Multicomputers, Fifth Distributed Memory Computing Conference, Charleston, SC, April 1990.
 IBM Tau Beta Pi Award (California Institute of Technology), writing competition, 1981

Selected Administrative Achievements as UAB Chair of Computer and Information Sciences

- 1) Led successful ABET Accreditation for the Bachelor of Science Program (October 2005). Re-visit October 2012 (renewed as of September 2013).
- 2) Recruited, hired, and retained at total of seven professors during past ten years. Total faculty size was thirteen FTEs as of June 30, 2014, including one professor who started in August 2013.
- 3) Recruited two women assistant professors (among those seven mentioned), one is already tenured, the second is Hispanic. The tenured professor was promoted to full professor at UAB as of May, 2015.

- 4) Two of my assistant professor hires (T. Solorio, R. Hasan) were awarded NSF EARLY CAREER funding (notified in December 2013, effective 2014). I later nominated one of these professors (T. Solorio) for the Denise Denton Award, which she won and received recognition in 2014.
- 5) Graduated a PhD student who is an African American Woman in 2010 (Dr. Vetricia Byrd). She is currently working as an assistant professor on tenure track at Purdue University.
- 6) Recruited and hired Mr. Gary Warner, internationally renowned cybercrime expert in 2006. He is now the Director of the CIA|JFR that I inaugurated at UAB (see below).
- 7) Remodeled research labs and infrastructure, including winning three MRI grants (serving as PI) to enable CIS and HPC research.
- 8) Oversaw the regrowth in undergraduate population, and growth in PhD student graduations in the past nine years.
- 9) Obtained approval for the Master of Science in Computer Forensics and Security Management, program. Commenced operation in Fall 2011.
- 10) Introduced several types of continuous improvement processes for undergraduate and graduate education
- 11) Introduced supplemental instruction in CIS (tutoring for key undergraduate courses).
- 12) Designed and Introduced the Senior Capstone course (both for ABET and QEP requirements).
- 13) Introduced requirement for public speaking class for all computer science majors; Introduced public speaking requirements into the senior-level software engineering class as well as senior capstone.
- 14) Added ethics components to the software engineering and senior capstone classes.
- 15) I currently serve as founding chair of the “Research Capacity Building Committee,” a faculty-led effort I proposed in 2009 for expanding research opportunities and improving efficiency (from a faculty viewpoint) of all aspects of funded R&D. Supported directly by UAB VP of Research.
- 16) Grew research space for CIS and other faculty significantly with a new laboratory space in February 2010. This was based on a \$500,000 investment from our administration and Deans.
- 17) Approval of the Bachelor Science in Bioinformatics Degree at the University level. This has also been approved at the state level at the pre-proposal stage (NISP). We started developing the full proposal as of February 2014.

Selected Administrative Achievements as UAB Director of CIA|JFR UWIRC

- 1) Won approval for an Interdisciplinary Center for Forensics at UAB – CIA|JFR. Was only one of three non-medical UWIRCs at UAB as of June 30, 2014.
- 2) Successfully developed the Center for Information Assurance and Joint Forensics Research (CIA|JFR) from its 2011 approval to full center status with 45 members across UAB and a high level of activity.
- 3) With Development, obtained \$250,000 gift in 2012 from Facebook for the CIA|JFR completion and leveraged that into a \$900,000 upgrade on the 4th Floor of UBOB with a state-of-the-art facility. This was completed February 2013, providing our UWIRC center with a permanent home. It currently houses additional faculty from CIS, Justice Sciences, and one faculty member from Anthropology, as well as upwards of 60 student/postdoc researchers at peak usage.

- 4) In 2012, recruited Dr. John Grimes from his previous role in Justice Sciences to the Center into a new position, a research professor working almost exclusively on the Center mission and business development as well as his area of pedagogy.
- 5) Developed and chaired a successful conference series – Cyber Summit, first held at UAB in 2012 and at the BJCC (conference center) in 2013, and again at UAB in February 2014.
- 6) Launched the UAB Big Data Conference Series, the first of which was held in May 2013, co-sponsored by Intel, Data Direct Networks, and Cray Computer. This conference, which was co-sponsored with CIS, brought big-data science visibility to UAB for the first time and include life sciences, business, and forensics areas.
- 7) Supported the successful spin-off of the first commercial entity from the CIA|JFR, *Malcovery*, in 2012. Housed in *Innovation Depot*, it its hired first CIS graduate as an early employee. Some years later, this company was acquired/merged.
- 8) In 2013 and 2014, served as Co-PI and co-lead on developing the proposal with two professors at UAH and USA on a \$20M NSF EPSCOR Track-1 Proposal unifying over 40 Cyber-related scientists in the state. NSF EPSCOR Track-1 first had to win approval from the state committee. EPSCOR Track-1 is applicable in states with historically lower federal funding (26 of 50 states qualify). In 2014, we resubmitted. (This effort was completed while Center Director at Auburn.)
- 9) In 2013, joined with Auburn University leaders, UAB colleagues and other colleagues from around the state to create the Alabama Cyber Research Consortium (ALCRC.ORG), which is now an effective, statewide collaborative forum for building capacity in cyber R&D.

Selected Administrative Achievements as Auburn Cyber Center Director (July 1, 2014-August 2017):

- 1) Established a new research laboratory in “Internet of Things” and “Industrial Control Systems”
- 2) Recruited and supported a new group of 11 students (including 2 minority students and 1 female student) in cyber. Additionally, we had 7 undergraduate students involved as of Fall 2015.
- 3) Obtained significant new DOD-related cyber funding in Huntsville, AL (a major hub of DOD R&D) during my first year on faculty at Auburn for work on Cyber R&D (\$91K as PI, \$273K as co-PI); the majority of this funding continues in FY16.
- 4) Worked with Auburn development on closing a \$250,000 (+\$250,000 deferred) donation for the “Lt General Ronald Burgess, Jr, USA, Retired Cyber Research Laboratory,” which is the new home of the Cyber Center. Occupancy was in November 2016.
- 5) Created a visible, viable Cyber Center, with internal University and growing external visibility.
- 6) Led efforts to ramp up funded R&D with over 10 proposals submitted in the first year in which I was either the PI or a co-PI. 17 awarded grants/contracts since starting at Auburn on July 1, 2014 with approximately \$3M of total funding (either as PI or co-PI).
- 7) Promoted to Inaugural Director of the *Charles D. McCrary Institute for Critical Infrastructure Protection and Cyber Systems* (starting 8/16/16). Currently building a new, campus-wide institute with endowed funding in CIP and Cyber security, systems engineering. Responsible for managing an annual base budget of approximately

\$350,000 and deploying annual income from the \$10M endowment for the Institute.

Selected Administrative Achievements as SimCenter Director (August 2017-present):

- 1) Led upgrade of the high-performance computing and storage systems and established SimCenter as UTC's "Research Computing Core Facility"
- 2) Organized and supported a new, research network capacity to support smart cities, IoT, and related R&D
- 3) Began "rebranding" of SimCenter as a holistic part of the UTC's research and experiential learning cores
- 4) Engaged over a dozen new faculty in SimCenter from multiple colleges across UTC
- 5) Held two retreats (December 2017, January 2019) for team building and establishing trust and new collaborations.
- 6) Hired new positions: Grants Administrator and Graphic Artist/Web designer – to support SimCenter's support and outreach to campus faculty.
- 7) Dismissed probationary employee and rehired a superior Budget Coordinator (2018)
- 8) Converted temporary system administrator to fulltime position to provide long-term continuity and better support to students and professors working on high performance computing.
- 9) Upgraded and enhanced the research pilot award programs (CEACSE/THEC awards)—improved processes, improved peer review, and broader engagement of faculty across the UTC campus
- 10) Established strong working relationships with key Deans, chairs, and stakeholders to enhance faculty and student involvement in SimCenter programs and facilities
- 11) Began process of enhanced community engagement of SimCenter with Chattanooga.
- 12) Began process to engage regularly with Oak Ridge National Laboratory (ORNL)
- 13) Began the process of establishing meaningful international collaborations with University of Edinburgh and University of Cadiz.
- 14) Supported the submission of over 70 proposals in Fiscal Year 2018.
- 15) Obtained \$64,000 of NSF grant supplements to support undergraduate research in 2018.
- 16) PI on \$250,000 ReVV Economic Development funding to Support IMSA (A Chattanooga Startup)
- 17) PI at UTC for joint Boston University-UTC NSF Funding (\$450K is UTC portion) in 2019.
- 18) PI of NSF CC*Compute Grant (approx. \$393K)—New Cluster Computing Facility (2019).
- 19) Co-PI on NSF CC*Network Grant (approximately \$500K)---New 100Gbit/s Research Network for Campus. 2019. [Later PI on this grant.]
- 20) PI on UTC/TTU EHR: PEER proposal for total of \$100K for workshops on workforce development in Digital Twins.
- 21) Took lead role in development and submission of a large-scale, Department of Energy / NNSA - High-Performance Center Proposal (continuing in Calendar 2019) with the University of Alabama at Birmingham, and University of New Mexico (Albuquerque)---PSAAP III "Center for Understandable Performance – Exascale Communication Systems" ---funded. \$1.2M to UTC over 5 years.
- 22) Mentored more than 10 faculty on research capacity building and career strategy in 2018 and 2019.

- 23) Established new Research Thrusts in Cyber and High-Performance Computing, “Digital Twin,” “Critical Infrastructure Protection,” and “Extreme Systems” Research Thrusts for SimCenter.

Grants and Contracts

Collaborative Research: EAGER: Real-time Strategies and Synchronized Time Distribution Mechanisms for Enhanced Exascale Performance-Portability and Predictability; PI: Anthony Skjellum: 6/2022-5/2023; \$90,453.

Sandia National Laboratories Contracts (\$100K total, thus far) – Work on Software Engineering for HPC Systems Software Stacks, 2020-2023.

“CC* Compute: Augmenting a 2,560-core EPYC2 Computational Cluster with GPUs for AI, Machine Learning, and other GPU-Accelerated HPC Applications,” A. Skjellum (PI), Co-PIs: Eleni Panagiotou, Farah Kandah, Yingfeng Wang, Kidambi Sreenivas; \$415,868, 2022-2024,

“CC* CRIA: Planning a Regional Cyber-Infrastructure-Research Consortium for Middle Tennessee,” PI: Anthony Skjellum; Co-PIs: Ryan Otter, Gerald Gannod, Farah Kandah, Sheikh Ghafoor; 7/1/2020-6/30/2023; Award Amount: \$249,713.00;

DOE/NNSA PSAAP III Center for Understandable Performance – Exascale Communication Systems - subcontract from the University New Mexico (lead); other collaborating institution, University of Alabama; UTC Portion: \$1.2M over five years (UNM PI: Patrick Bridges, UA co-PI: Purushotham V. Bangalore)

LLNL/LLNS - MPI R&D for Fault Tolerance – \$60K. Skjellum, PI, 2020.

LLNL/LLNS - MPI R&D for Fault Tolerance – \$60K. Skjellum, PI, 2019.

“NSF Collaborative Research: Software Engineering Workforce Development in High Performance Computing for Digital Twins.” A. Skjellum (PI) with two UTC co-PIs and two TTU co-PIs. UTC portion: \$57,635.

“NSF HDR DSC: Collaborative Research: Transforming Data Science Education through a Portable and Sustainable Anthropocentric Data Analytics for Community Enrichment Program.” Yu Liang (Overall PI), A. Skjellum (co-PI), with three other co-PIs at UTC. \$723,644 (UTC portion). 2019

“NSF SPX: Collaborative Research: Intelligent Communication Fabrics to Facilitate Extreme Scale Computing,” Boston University PI: Martin Herbordt; UTC PI: A. Skjellum, with C. Tanis (co-PI). \$450,097 (UTC portion). 2019.

ReVV Grant (IMSA), A. Skjellum (PI), with two UTC co-PIs. \$250,000. May 5, 2019 November 5, 2020.

“NSF CC* Compute: A Cost-Effective, 2,048 Core InfiniBand Cluster at UTC for Campus Research and Education,” Skjellum (PI), with 4 co-PIs at UTC. \$392,235. 2019.

“NSF CC* Networking Infrastructure: Advancing High-speed Networking at UTC for Research and Education,” F. Kandah (PI), A. Skjellum (co-PI), with 3 other co-PIs at UTC -\$515,663; 2019.

Sandia - MPI R&D– \$100K. A. Skjellum, PI, C. Tanis, co-PI. 2019-2020 (split funding over 2 fiscal years).

NSF CICI: Data Provenance: Collaborative Research: Provenance Assurance Using Currency Primitives (Supplement), A. Skjellum, PI, R. Brooks (Clemson), co-PI, \$39,000 (UTC Portion), January 1, 2016-December 31, 2019. [Supplement.]; Additional \$34,866 supplement to UTC only in 2019.

LLNL/LLNS - MPI R&D for Fault Tolerance – \$59K. Skjellum, PI, 2018.

IBM Faculty Award (Philanthropic Grant for R&D in Distributed Grid). A. Skjellum, \$20,000 (no indirect). 2018.

IBM Faculty Award (Philanthropic Grant for R&D in Machine Learning for Malware). A. Skjellum, \$40,000 (no indirect). 2016.

NSF-ACI-1642083 - CICI - SE Scientific Cybersecurity For University Research – Clemson, UAH, Auburn, Vorhees, JSU. Skjellum PI for Auburn. \$80,964 (Auburn budget). 10/1/16- 9/30/18. [Transferred to UTC.]

NSF-ACI-1642133-CSSE – CICI - Data Integrity Assurance & Privacy Protection Solutions For Secure Interoperability Of Cloud Resources – Ku (PI), Skjellum (co-PI), \$467,028 (UAB has a separate budget in addition to this). 10/1/16 - 9/30/19.

SIT-2102659-01-TO65-RT165 - Cybersecurity For System Of Systems Architectures – Umphress (PI), Skjellum (co-PI), \$174,813. 8/9/16-8/8/17.

PROGENY-PSC-0342 –COTS Approach To Information Security – STTR subcontract – Umphress (PI), Skjellum (co-PI), \$120,000. exp. 11/9/16-6/27/18.

LLNL/LLNS - MPI R&D for Fault Tolerance – \$54,000. Skjellum, PI. 10/1/16- 9/30/17.

NSF SHF: Medium: Collaborative Research: Next-Generation Message Passing for Parallel Programming: Resiliency, Time-to-Solution, Scalability, and QoS. Collaborative with UAB. Auburn Portion proposed \$736,557. Funded at \$602,000. Total budget of approximately \$1M between the institutions. 6/1/16-5/31/20. [Transferred to UTC.]

NSF SHF: Small: Collaborative Research: Coupling computation and communication in FPGA-enhanced Clouds and Clusters. Joint with Boston University. \$249,063 (Auburn portion). Funded at \$225,000. 9/1/16-8/31/19. [Transferred to UTC.]

NSF CICI: Data Provenance: Collaborative Research: Provenance Assurance Using Currency Primitives, A. Skjellum, PI, R. Brooks (Clemson), co-PI, \$248,755 (Auburn portion), January 1, 2016-December 31, 2019. [Transferred to UTC.]

DOD/NSA: Using Data Mining to Detect Malware in the Internet of Things. A. Skjellum, PI, \$74,683, August 1, 2015-August 31, 2016.

NSF EAGER Cyber Manufacturing- Novel Process Data Analytics Framework For Iot-Enabled Cybermanufacturing, J. Wang, PI, A. Skjellum, Co-PI, \$244,942, September 1, 2015-August 31, 2018.

Ephemeral Security Overlay For GPS, SBIR, Integrated Solutions For Systems: Af-FA9453-15-M-0473, \$5,000, July 10, 2015-April 10, 2016 (co-PI with Drs. Alvin Lim and David Bevly).

BAE Subcontract from US Army (“Cyber Risk,” “Kestrel Eye”), R. Summers, PI, A. Skjellum, Co-PI, \$273,870, September 29, 2014 – September 28, 2015 (with renewals in ~\$100K FY16 and FY17).

COLSA Professional Engineering Services (for AMDREC), subcontract to US Army, A. Skjellum PI, \$91,507, February 15, 2015 – September 23, 2015. (with no cost extension in 2016).

Sandia Funding for Exascale Storage System Research, A. Skjellum, PI, \$161,000, October 1-September 30, 2015. (with renewal year in FY16 at \$85,000).

Sandia Funding for Exascale Fault Tolerant MPI, A. Skjellum, PI, \$30,000, July 1-September 30, 2014.

Sandia Funding for Exascale Storage System Research, A. Skjellum, PI, \$64,000, July 1-September 30, 2014.

Sandia Funding for Exascale Storage System Research, A. Skjellum, PI, \$41,000, March 2014-June 30, 2014.

Sandia Funding for Exascale Fault Tolerant System Research, A. Skjellum, PI, \$100,000, March 2013.

“Alabama Innovation Fund,” supported by Governor Bentley, A. Skjellum, PI, \$250,000 plus UAB match. 2012. This award recognizes and supports CIS and Center commercialization efforts, notably *Malcovery*, plus is partially supporting two postdoctoral fellows at CIS in 2013.

Sandia Funding for Exascale File System Research (Sirocco), A. Skjellum, PI, \$250,000, February 2013 (for October 1, 2012 start). Total funding yielded was nearly \$1M over time.

“EAGER Grant, Research in Fault Tolerant MPI,” A. Skjellum, PI; \$100,000. National Science Foundation, 2012, no-cost extended through May 31, 2014.

“MRI: Development of a GPU-Enabled, Petascale Active Storage Architecture for Data-Intensive Applications in HPC and Cloud Environments,” A. Skjellum PI: \$300,000 plus \$128,000 UAB Matching, National Science Foundation, 2012. [Switched to co-PI on move to Auburn in 2014.]

Sandia Funding for Exascale File System Research (Sirocco), A. Skjellum, PI, \$245,000, December 2011. Renewable for 4 more years – total expected support over \$1.2M. Renewals shown above at UAB and then at Auburn starting in 2014.

“NSF EAGER Grant, Research in Peer File System,” A. Skjellum, PI; also joint funding with Clemson University, 2010-2011. UAB funding is \$67,000. Led to Sandia follow-on support.

Funding from Sandia National Laboratories for Work on Peer File System Research, 2009-2010 (on-going). Initial funding level: \$80,000. A. Skjellum, PI at UAB. Also funded are Clemson University and University of Minnesota on separate contracts.

“Cybercrime and Security: A Model State Partnership,” United States Department of Justice, Bureau of Justice Assistance. (\$500K over 1 year). John J. Sloan, III and Anthony Skjellum (Co-Principal Investigators). Grant #2010-DD-BX-0603, 2010.

“UAB Anti-Cybercrime Computational Operation,” Edward J. Byrne Memorial State and Local Justice Assistance Grant (\$447K over three years). John J. Sloan III and Anthony Skjellum (Co-Principal Investigators). Grant #2008-DD-BX-0407, 2008.

“Support for UAB Computer Forensics Laboratories Project,” United States Department of Justice, Office of Community Oriented Policing Service (COPS), COPS Technology Grant. FY 2006 (\$987K over 3 years). John J. Sloan, III and Anthony Skjellum (Co-Principal Investigators). Grant #2006-CKWX-0582, 2006.

“MRI: Development of a GPU-Enabled Integrated Storage Computation Architecture and System,” \$300,000 plus \$128,000 UAB Matching, National Science Foundation, 2008-12.

“MRI: Computer and Information Sciences Grid Node Research Facility,” National Science Foundation, August 15, 2004-July 31, 2007. This is a \$250,000 equipment grant, with \$107,000 of matching to create the CIS Department’s “Grid Node” or “Grid Cluster.” Role: PI, with six co-PIs.

“Collaborative Research: A Systematic Approach to the Derivation, Representation, Analysis, and Correctness of Dense and Banded Linear Algebra Algorithms for HPC Architectures,” National Science Foundation, July 1, 2003-June 30, 2006 [extended to June 30, 2007]. This project seeks to advance the understanding of how to gain more performance, predictability, and correctness from scalable and cache-memory oriented algorithms key to many scientific applications. Role: PI (at UAB), co-PI of the overall proposal.

“ALGORITHMS: Collaborative Research: New Contributions to the Theory and Practice of Programming Linear Algebra Libraries,” National Science Foundation. August 1, 2002- July 31, 2003, Role: PI at MSU, Co-PI of overall proposal.

“NGS: Computational Vortals for Next-Generation Scalable Computing,” National Science Foundation, December 1, 2001 – December 1, 2004, This grant addresses the use of grid computing and portal-based computing in order to advance scientific problem solving environments. Role: Co-Principal Investigator

“Integration of Fuzzy Data Mining with High Performance Scalable Computing: Intrusion Detection, Fault Detection, and Performance Monitoring,” BMDO (DEPSCoR), \$623,963, April 2001 - March 2004 (Other PIs: Rayford Vaughn and Susan Bridges).

“A QOS-Based Approach to Clustering and Interclustering with a Unified Methodology for Scalability, Security, Performance, Fault-Handling, and Co-Scheduling,” National Science Foundation, \$220,000, September 1, 2000 – August 31, 2002, (other PI: Rayford Vaughn).

“A Gigabit/s, VIA-Enabled Cluster Architecture for Research in High Performance Systems Software, Scalable Knowledge Discovery, Visualization, and Parallel Planning Under Uncertainty” National Science Foundation CISE Instrumentation Program, \$214,939, July 1, 1999 - June 30, 2002 (Other PIs: Julia Hodges, Lois Boggess, Susan Bridges, Donna Reese, Raghu Machiraju, and Eric Hansen).

“Distributed Intrusion Detection Using Fuzzy Data Mining Applied to High Performance Cluster Computation,” U.S. Department of Army Research Laboratory, \$153,983, September 2000- September 2002 (Other PIs: Rayford Vaughn and Susan Bridges).

“Parallelizing a FORTRAN90 SWAFS Code with MPI,” Mississippi Research Consortium, \$42,500, October 1, 1998 - February 28, 1999.

“The Scalable Knowledge Discovery Initiative,” Hearin Foundation, \$49,000, May 16, 1998 - May 15, 1999 (Other PIs: Julia Hodges, Susan Bridges, and Raghu Machiraju).

“Parallelizing a FORTRAN90 SWAFS Code for CRAY T3E with MPI,” Lockheed-Stennis, \$14,000, December 1, 1997 - February 28, 1998 (PI; co-PIs: Ioana Banicescu and Raghu Machiraju).

“Heterogeneous Embedded Real-Time Systems Environment,” Integrated Sensors, Inc. [DARPA BAA 9706 subcontract], \$400,000, July 1, 1997 - June 30, 2000.

“Parallel Mathematical Libraries Project II,” DOE/USIC/LLNL, \$80,000, January 1, 1998 - December 31, 1998.

“MPICH Technology and Optimizations for the Cray T3E,” CEWES MSRC focused effort, \$20,000, December 1, 1997 - June 30, 1998.

“Support for Scalable CFD and MPI,” CEWES MSRC focused effort, \$60,000, April 1, 1997 - March 30, 1998 (PI; Co-PI: Puri Bangalore).

“Technical Computing on Intel Platforms and Scalable Interface for Evolving, Mass-Market PC Applications (supplement),” Intel Software Technology Laboratory, Amount: \$45,076, December 1, 1996.

“Myrinet 4.1 Memory-Mapped Device Driver Development for Windows NT Systems,” Myricom, Inc, \$10,000, December 1, 1996 - January 31, 1997.

“Intel Software Grant,” Intel, \$18,000, October 1996.

“Development of MPI and Myrinet Technologies for a Secure, Heterogeneous Application Runtime Environment for High Performance Computing (SHARE-HPSC),” Sanders (Lockheed-Martin), subcontract of DARPA contract, \$208,523, September 1995 - November 1997.

“Revolutionary Advances in Ubiquitous, Realtime, Multicomputers and Runtime Environments,” DARPA/US Air Force Rome Laboratory, \$1,250,000, October 1996 - June 1999 (joint project with University of Maryland).

“Tactical Advanced Signal Processor Effort (TASP),” U.S. Navy, \$125,000, 1999.

“Tactical Advanced Signal Processor Effort (TASP),” U.S. Navy, \$95,000, 1997.

“Parallel Mathematical Libraries Project,” DOE/USIC/LLNL, \$60,000, July 11, 1996 - December 31, 1997.

“Intel Paragon MPI and ATM Research,” Intel, \$230,000, July 1996.

“ATM-based Heterogeneous MPI for the P6 Paragon Multicomputer and 4-Way P6 Multiprocessor,” Intel, \$31,000, January 1, 1996 - December 31, 1998.

“Embedded Message Passing Interface (eMPI) for the Advanced Common Processor,” Sanders (Lockheed-Martin, Hudson, NH), \$33,000, August 1, 1996 - December 20, 1996.

“Dynamic Process Simulation on Computers with Parallel Architectures,” National Science Foundation, \$11,000, 1995-1996 (no cost extension of original grant).

“The Parallel Mathematical Libraries Project,” United States Industry Coalition, Inc. (USIC; collaboration among LLNL (Dept. of Energy), the Russian Federal Nuclear Center, Arzamas-16 (VNIIEF/Sarov), Intel, and MSU), \$35,000, September 1995.

“Technical Computing on Intel Platforms; Scalable Interfaces for Evolving, Mass-Market PC Applications,” Intel, Inc., \$76,000 (approximate), September 1995.

“A Multi-Faceted Study of Scalable Parallelism for Computational Science and Engineering,” Skjellum and Lumsdaine (Notre Dame), National Science Foundation, Co-PIs, period of performance: September 15, 1995-August 14, 1998, MSU part of budget: \$180,000, ND part of budget \$180,000 (both over three years). (Funded unsolicited proposal to CISE ASC Directorate).

“Innovative High Performance Distributed Computing Research and Education: Parallel Algorithms, Libraries, Computational Models, and Distributed Services,” National Science Foundation **EARLY CAREER** Award, \$124,800, September 1, 1995 - August 31, 1998.

“High Performance Research and Technology for Parallel Programming based on Embedded and Real-time Extensions of the Message Passing Interface (MPI) and MsgWay Protocol,” DARPA, \$1,386,847, September 1, 1995 - June 30, 1998.

“Collaborative Research and Development of MPI and Myrinet Technologies for Embedded High Performance Computing,” Martin-Marietta Laboratories, \$57,656, March-December, 1995.

“National High Performance Distributed Computing Consortium,” U.S. Army Corps of Engineers Waterways Experiment Station, \$75,000, September 1, 1995 - April 30, 1998.

“Parallel Solution, Grid Generation, and Visualization of Turbo-Machinery Grand Challenge Problems,” Department of Energy, \$254,598, October 1, 1994 - September 30, 1996, in cooperation with Sandia National Laboratories (co-PIs: D. Reese, E. Luke, and D. Barnette).

“The Multicomputer Toolbox,” Lawrence Livermore National Laboratory, \$670,000, 1991-92. LDRD internal funding.

Publications

Refereed Journal Papers

"Haghi, Pouya; Guo, Anqi; Xiong, Qingqing; Yang, Chen; Geng, Tong; Broaddus, Justin T; Marshall, Ryan; Schafer, Derek; Skjellum, Anthony; Herbordt, Martin C; "Reconfigurable switches for high performance and flexible MPI collectives," *Concurrency and Computation: Practice and Experience*, 34:6, e6769, 2022.

"Weerasena, Lakmali; Ebiefung, Aniekan; Skjellum, Anthony; ",Design of a heuristic algorithm for the generalized multi-objective set covering problem," *Computational Optimization and Applications*, pp. 1-35, 2022, Springer US.

“Nansamba, Grace; Altarawneh, Amani; Skjellum, Anthony; “A Fault-Model-Relevant Classification of Consensus Mechanisms for MPI and HPC,” *International Journal of Parallel Programming*, pp. 1-22, 2022, Springer US.

Dosanjh, Matthew GF and Worley, Andrew and Schafer, Derek and Soundararajan, Prema

and Ghafoor, Sheikh and Skjellum, Anthony and Bangalore, Purushotham V and Grant, Ryan E, *Implementation and evaluation of MPI 4.0 partitioned communication libraries*, Parallel Computing, Vol. 108, page ID=102827, 2021.

Altarawneh, Amani and Sun, Fei and Brooks, Richard R and Hambolu, Owulakemi and Yu, Lu and Skjellum, Anthony, *Availability analysis of a permissioned blockchain with a lightweight consensus protocol*, Computers & Security, Vol. 202, page ID 102098, 2021

Sultana, Nawrin and Ruefenacht, Martin and Skjellum, Anthony and Bangalore, Purushotham and Laguna, Ignacio and Mohror, Kathryn, *Understanding the use of Message Passing Interface in exascale proxy applications*, *Concurrency and Computation: Practice and Experience*, Vol. 33., No. 14, pages ID e5901, 2021.

McCullough, JWS and Richardson, RA and Patronis, A and Halver, R and Marshall, R and Ruefenacht, M and Wylie, BJN and Odaker, T and Wiedemann, M and Lloyd, B and others, *Towards blood flow in the virtual human: efficient self-coupling of HemeLB*, *Interface focus*, Vol. 11, page ID=20190119, 2021.

Worley, Carl and Yu, Lu and Brooks, Richard and Oakley, Jon and Skjellum, Anthony and Altarawneh, Amani and Medury, Sai and Mukhopadhyay, Ujan, *Scrybe: A Second-Generation Blockchain Technology with Lightweight Mining for Secure Provenance and Related*, in *Blockchain Cybersecurity, Trust and Privacy*, Vol. 79, pages 51+, 2020.

Reising, Donald and Cancellieri, Joseph and Loveless, T Daniel and Kandah, Farah and Skjellum, Anthony, *Radio identity verification-based IoT security using RF-DNA fingerprints and SVM*, in *IEEE Internet of Things Journal*, Vol. 8, No. 10, pages 8356--8371, 2020.

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Skjellum, A., and B.K. Grant, "Message Passing in the 1990's: Performance, Safety, Correctness," *Proceedings of Supercomputing 1993*, 1993, pp. 767-768 (invited presentation).

Skjellum, A., "MPI: A Message Passing Interface," *Proceedings of Supercomputing 1993*, 1993, pp. 878-883.

Skjellum, A., "Document for a Standard Message-Passing Interface," *Proceedings of the Message Passing Interface Forum*, University of Tennessee, November 1993 (specifically, Chapter 5).

Skjellum, A., N.E. Doss, and P.V. Bangalore, "Writing Libraries in MPI," *Proceedings of the Scalable Parallel Libraries Conference (SPLC)*, October 1993, pp. 166-173. [53 Citations on Google Scholar as of June, 2015].

Skjellum, A., "The Multicomputer Toolbox: Current and Future Directions," *Proceedings of the Scalable Parallel Libraries Conference (SPLC)*, October 1993, pp. 94-103.

Smith, S.G., R.D. Falgout, C.H. Still, and A. Skjellum, "High-Level Message-Passing Constructs for Zipcode 1.0: Design and Implementation," *Proceedings of the Scalable Parallel Libraries Conference (SPLC)*, October 1993, pp. 150-159.

Bangalore, P.V., A. Skjellum, C.H. Baldwin, and S.G. Smith, "Dense and Iterative Concurrent Linear Algebra in the Multicomputer Toolbox," *Proceedings of the Scalable Parallel Libraries Conference (SPLC)*, October 1993, pp. 132-141.

Anupindi, K., A. Skjellum, P. Coddington, and G.C. Fox, "Parallel Differential-Algebraic Equation Solvers for Power System Transient Stability Analysis," *Proceedings of the Scalable Parallel Libraries Conference (SPLC)*, October 1993, pp. 240-244.

Leung, A.P., A. Skjellum, and G.C. Fox, "Concurrent DASSL: A Second-Generation DAE Solver Library," *Proceedings of the Scalable Parallel Libraries Conference (SPLC)*, October 1993, pp. 204-210.

Briley, W.R., D.G. Reese, A. Skjellum, and L. Turcotte, "NHPDCC--The National High Performance Distributed Computing Consortium," *Proceedings of the Scalable Parallel Libraries Conference (SPLC)*, October 1993, pp. 2-9.

Skjellum, A., "Scalable Libraries in a Heterogeneous Environment," *Proceedings of the Second High Performance Distributed Computing Conference (HPDC2)*, July 1993, pp. 13-20 (invited paper).

Falgout, Robert D., Anthony Skjellum, Steven G. Smith, and Charles H. Still, "The Multicomputer Toolbox Approach to Concurrent BLAS and LACS," *Proceedings of the Scalable High Performance Computing Conference (SHPCC)*, April 1992, pp. 121-128.

Skjellum, Anthony, and Charles H. Still, "Zipcode and the Reactive Kernel for the Caltech Intel Delta Prototype and nCUBE/2," *Proceedings of the Sixth Distributed Memory Computing Conference (DMCC6)*, April 1991.

Skjellum, A., and Alvin P. Leung, "Zipcode: A Portable Multicomputer Communications Library atop the Reactive Kernel," *Proceedings of the Fifth Distributed Memory Computing Conference*, 1990. [83 citations per Google Scholar as of December 2022].

Skjellum, A., and Alvin P. Leung, "LU Factorization of Sparse, Unsymmetric Jacobian Matrices on Multicomputers: Experience, Strategies, Performance," *Proceedings of the Fifth Distributed Memory Computing Conference*, 1990.

Skjellum, A., and M. Morari, "Concurrent DASSL Applied to Dynamic Distillation Column Simulation," *Proceedings of the Fifth Distributed Memory Computing Conference*, 1990.

Skjellum, A., M. Morari, S. Mattisson, and L. Peterson, "Concurrent DASSL: Structure, Application, and Performance," *Proceedings of the Fourth Conf. on Hypercubes, Concurrent Computers and Applications (HCCA4)*, Golden Gate Enterprises, 1989, pp. 1321-1328.

Skjellum, A., M. Morari, S. Mattisson, and L. Peterson, "Highly Concurrent Dynamic Simulation in Chemical Engineering II," *Proceedings of the AIChE Annual Meeting*, San Francisco, November 1989.

Skjellum, A., M. Morari, S. Mattisson, and L. Peterson, "Highly Concurrent Dynamic Simulation in Chemical Engineering: Issues, Methodologies, Model Problems, Progress," *Proceedings of the AIChE Annual Meeting*, Washington, DC, November 1988.

Skjellum, A., M. Morari, and S. Mattisson, "Concurrent Dynamic Simulation of Distillation Columns via Waveform Relaxation," *Proceedings of the Second International Conference on Vector and Parallel Computing*, Norway, June 1988.

Skjellum, A., M. Morari, and S. Mattisson, "Waveform Relaxation for Concurrent Dynamic Simulation of Distillation Columns," *Proceedings of the Third Conference on Hypercube Concurrent Computers and Applications*, Pasadena, January 1988, pp. 1062-1071.

Smith, R.S., J. Doyle, M. Morari, and A. Skjellum, "A Case Study Using Laboratory Process Control Problems," *Proceedings of the IFAC 10th World Congress on Automatic Control, Vol. 8*, Munich, July 1987.

Lewin, D.R., R.E. Heersink, A. Skjellum, D.L. Laughlin, and D.E. Rivera, "Robex: Robust Control Synthesis via Expert System," *Proceedings of the IFAC 10th World Congress on Automatic Control*, Munich, July 1987.

Morari, M., R.E. Heersink, and A. Skjellum, "Development of an Expert System for Computer-Aided Instruction in Process Control," *Proceedings of IBM AIS University AEP Conference*, 1986.

Skjellum, A., "Integration of Computational Elements into a Problem-Oriented Chemical Engineering Course," *Proceedings of IBM AIS University AEP Conference*, 1985.

Books

Gropp, William, Ewing Lusk, and Anthony Skjellum, *Using MPI: Portable Parallel Programming with the Message Passing Interface*, MIT Press, 3rd Edition, November 2014. [6,513 citations on Google Scholar as of December 2022. This reflects all 3 editions.]

Gropp, William, Ewing Lusk, and Anthony Skjellum, *Using MPI: Portable Parallel Programming with the Message Passing Interface*, MIT Press, October 1994.

Chapters of Books

Bhat, Naazira B and Madurasinghe, Dulip and Ozcelik, Ilker and Brooks, Richard R and Venayagamoorthy, Ganesh Kumar and Skjellum, Anthony, *Evaluation and Design of Performable Distributed Systems*, In Handbook of Advanced Performability Engineering, pages 211--227, 2021

Skjellum, A., "Parallel Processing," *Lecture Notes in Computer Science Vol. 1/1123*, Springer Verlag, 1996, pp. 128-135.

Bangalore, P.V., N.E. Doss, Ziyang Lu, and A. Skjellum, "Explicit Parallel Programming in C++ based on the Message-Passing Interface (MPI)," Chapter in *Parallel Programming Using C++*, G. V. Wilson, Ed., MIT Press, 1995.

Chapter 16 and parts of chapter 9 of *Parallel Computing Works!* by Fox, Messina, and Smith, Morgan-Kaufmann, April 1994.

Skjellum, Anthony, Steven G. Smith, Charles H. Still, Alvin P. Leung, and Manfred Morari, "The Zipcode Message-Passing System," *Parallel Computing Works*, Geoffrey C. Fox, editor, 1993 (also as Lawrence Livermore National Laboratory Technical Report No. UCRL-JC-112022, 1992.)

Selected Volumes Edited

James H. Graham, Anthony Skjellum: 22nd International Conference on Parallel and Distributed Computing and Communication Systems, PDCCS 2009, September 24-26, 2009, Marriott Louisville Downtown, Louisville, Kentucky, USA ISCA 2009.

Selected Reports

Steven Eliuk, Cameron Upright and Anthony Skjellum, "dMath: A Scalable Linear Algebra and Math Library for Heterogeneous GP-GPU Architectures," CoRR abs/1604.01416, 2016, <http://arxiv.org/abs/1604.01416>.

Skjellum, A., (co-chair and co-editor) "DRAFT Document for the Real-time Message Passing Interface (MPI/RT) Standard," Real-Time Message Passing Interface (MPI/RT) Forum, Revision of 1/16/98.

Dimitrov, R., B. Protopopov, and A. Skjellum, "How Data Transfer Modes and Synchronization Schemes Affect the Performance of a Communication System Based on Myrinet," Technical Report revision of 12/97, 1997.

Henley, G., N. Doss, and A. Skjellum, "BDT: A Thread Library for the Myricom LANai 4.x Communications Processor," Technical Report No. MSSU-EIRS-ERC-97-2, NSF Engineering Research Center, Mississippi State University, February 1997.

Henley, G., N. Doss, T. McMahon, and A. Skjellum, "BDM: A Multiprotocol Myrinet Control Program and Host Application Programmer Interface," Technical Report No. MSSU-EIRS-ERC-97-3, NSF Engineering Research Center, February 1997.

Doss, N., G. Henley, and A. Skjellum, "BDMD: A Debugger for Myrinet Control Programs," Technical Report No. MSSU-EIRS-ERC-97-4, NSF Engineering Research Center, February 1997.

Skjellum, A., S.G. Smith, C.H. Still, and R.D. Falgout, "The Multicomputer Toolbox," *Laboratory Directed Research and Development*, Technical Report No. UCRL-53689-92, Lawrence Livermore National Laboratory, University of California, February 1993.

Grant, Brian K., and Anthony Skjellum, "The PVM Systems: An In-Depth Analysis and Documenting Study: Concise Edition," Lawrence Livermore National Laboratory Technical Report NO. UCRL-JC-112016, August 1992.

Skjellum, Anthony, and Chuck Baldwin, "The Multicomputer Toolbox: Scalable Parallel Libraries for Large-Scale Concurrent Applications," Technical Report No. UCRL-JC-109251, Lawrence Livermore National Laboratory, University of California, December 1991.

Skjellum, A., and M. Morari, "Zipcode: A Portable Multicomputer Communications Library for High-Performance Computing: Practice and Experience," Technical Report, Lawrence Livermore National Laboratory, University of California, March 1991.

Crawford, G. III, Y. Dandass, and A. Skjellum, "The JMPI Commercial Message Passing Environment and Specification: Requirements, Design, Motivations, Strategies, and Target Users."

Selected Presentations

Workshops

Skjellum, A., R. Batchu, Y. Dandass, and M. Beddhu, "MPI/FT: A Model-Based Approach for Low-Overhead Fault-Tolerance," 1st Sandia/CSRI Fault Tolerance Workshop, Albuquerque, NM, June 10, 2002.

Skjellum, A., Hebert, S., A. Kanevsky, and Z. Cui, “MPIDC99 Tutorial on MPI/RT,” Third MPI Developers and Users Conference, Atlanta, March 1999 (half-day tutorial).

Skjellum, A., and P. Bangalore, “MPIDC99 Tutorial on MPI-2,” Third MPI Developers and Users Conference, Atlanta, March 1999, (half-day tutorial).

Skjellum, A., and P. Bangalore, “SIAM Tutorial on MPI-2,” SIAM 9th Conference On Parallel Processing for Scientific Computing, San Antonio, March 1999, (half-day tutorial).

Skjellum, A., and P. Bangalore, “IPPS Tutorial on High Performance Computing,” IPPS’97, Geneva, Switzerland, April 1997 (half-day tutorial).

Skjellum, A., and P. Bangalore, “IPPS Tutorial on MPI,” IPPS’97, Geneva, Switzerland, April 1997 (half-day tutorial).

Skjellum, A., “Design and Development of Real-Time Message Passing Interface (MPI/RT) Standard,” High Performance Embedded Computing Workshop, September 1997.

Skjellum, A., “A Second Talk about MPI,” SCRI Cluster Workshop ‘93, Florida State University, December 8, 1993.

Skjellum, A., “Writing Parallel Libraries with MPI,” AMPI: A Message Passing Interface Mini-Symposium, Supercomputing 1993, Portland, OR, November 19, 1993.

Skjellum, A., “Message Passing Systems: Portability, Capability, Performance, Standards,” The First CRPC Workshop on Standards for Message Passing in a Distributed Memory Environment, Williamsburg, VA, April 1992 (invited presentation).

“The Reactive Kernel and Cosmic Environment: Native and Emulated Systems for Medium-Grain Multicomputers and Workstation Networks.” The First CRPC Workshop on Standards for Message Passing in a Distributed Memory Environment, Williamsburg, VA, April, 1992 (invited presentation).

Invited Lectures

“MPI 4: An Exascale Message Passing Strawman Standard,” Sandia National Laboratories, April, 2011.

“Gibraltar GPU RAID”, EMC Technical Talk, co-presented with Matthew Curry, November 8, 2010, Cambridge, Mass.

“MPI-3: Evolution, Revolution, or Status Quo,” Sandia National Laboratories, June 12, 2002.

“Efficient Implementations of MPI,” Lawrence Livermore National Laboratory, February 16, 1995.

“The National High Performance Distributed Computing Consortium,” Lawrence Livermore National Laboratory, October 21, 1993.

“MPI: An Effort to Standardize Multicomputer Message Passing,” Los Alamos National Laboratory, CNLS Seminar, July 6, 1993 (also presented at NASA Ames, August 18, 1993; and Lawrence Livermore National Laboratory, August 19, 1993).

“Building Parallel Libraries and Applications in the MPP Environment,” Lawrence Livermore National Laboratory, August 17, 1993.

“The Multicomputer Toolbox: First-and Second-Generation Scalable Libraries and Algorithms Research,” Sandia National Laboratories, Massively Parallel Computing Research Laboratory, June 2, 1993 (also presented at Argonne National Laboratories, September 7, 1993).

University Service

At UTC

Computer Science and Engineering, Search committee Chair, 2022-23

At Auburn

Computer Science and Software T&P Committee, 2014-2017.

Computer Science and Software Engineering Recruitment Committee, 2016-2017.

At UAB

Chair, University-wide Committee, “Research Capacity Building Committee,” 2009-2014.

Organized and Led Training sessions for NSF Career Award Submissions: provided in-service workshops for Professors seeking NSF CAREER awards, 2008-2014.

At Mississippi State

Computer Science Department/Research Center Liaison Committee, 2001-02

- Chairman, 2001-02

Computer Science Faculty Search Committee, 1997-98, 1999-00

Computer Science Facilities Committee, 1998-02

- Chairman, 1998-99, 2000-01

Computer Science *Ad Hoc* Committee on Graduate Student Concerns, 2001-02

Computer Science Affiliation Agreements Committee, 1999-00

Computer Science *Ad Hoc* Committee on Target Schools, 2000-01

Computer Science Strategic Planning Committee, 2000-01

Courses Taught

At Auburn

COMP 5350/6350/6356 – Digital Forensics

COMP 5370/6370/6376 – Computer and Network Security

At UAB

CS 306 Object-oriented Perl Programming

CS 420/520 Software Engineering

CS 436/636 Computer Security

CS 434/634 Parallel Computing

CS 620/630 Bioinformatics I/II (Coordinator)

CS 499 Senior Capstone

CS 591/691 Virtualization

CS 680/780 Foundations of Numerical Computing

CS 334/534 Introduction to TCP/IP

At Mississippi State University

CS 9133 Parallel Scientific Computing

CS 8733 Advanced Systems Programming

CS 4992/6992 Advanced Programming Using C++

CS 3183 Systems Programming

CS 4812/6812 Computer Systems Laboratory I

CS 4743/6743 Operating Systems II

CS 4192/6192 Computer Systems Laboratory II

CS 4163/6163 Design of Parallel Algorithms

CS 4153/6153 Data Communications and Networking

CS 1213 Fortran for Scientists and Engineers

Students Advised or on Committee (Currently)

UTC Ph.D. students [advisor]:

[REDACTED]

Auburn Ph.D. students [co-advisor or committee]:

[REDACTED]

Students Advised (Graduated)

Postdoctoral Fellow at UAB (2013-14): [REDACTED]
Postdoctoral Fellow at UTC (2018-19): [REDACTED]

Ph.D. students advised (with degrees granted):

At UTC:
[REDACTED]

At Auburn (mentored, others were major professors after I moved to UTC):
[REDACTED]

At UAB:
[REDACTED]

At Mississippi State:
[REDACTED]

Master's students advised:

At UTC:
[REDACTED]

At UAB:
[REDACTED]

At Mississippi State:
[REDACTED]

[REDACTED]

6.2

Curriculum vitae

Zhanjiang (John) Liu

Professor of Biology, Syracuse University, Syracuse NY 13244

6.2

EDUCATION

Ph.D. 1989	Cell and Developmental Biology, University of Minnesota, St. Paul, MN
M.S. 1985	Plant Pathology, University of Minnesota, St. Paul, MN
B.S. 1981	Plant Protection, Northwestern Agricultural University, Shaanxi Province, China

APPOINTMENTS

• VP-International Strategy, and Professor of Biology, Syracuse University	2022-present
• Interim Provost, and Professor of Biology, Syracuse University	2020-2021
• Vice President for Research, and Professor of Biology, Syracuse University	2017-2019
• Associate Provost and Associate Vice President for Research, and Distinguished Alumni Professor of Aquaculture, Auburn University	2013-2017
• Associate Dean for Research, College of Agriculture and Distinguished Alumni Professor of Aquaculture, Auburn University	2007-2013
• Distinguished Alumni Professor of Aquaculture and Cell and Molecular Biosciences, Auburn University	2003-2007
• Associate Professor of Aquaculture, Auburn University	1999-2003
• Assistant Professor of Aquaculture, Auburn University	1995-1999
• R&D Director, National Biosciences, Inc., Plymouth, Minnesota	1994-1995
• Research Associate, Institute of Human Genetics, University of Minnesota	1991-1994
• Postdoctoral Fellow, USDA-ARS Cereal Disease Laboratory, St. Paul, MN	1990-1991
• Graduate Research and Teaching Assistant, University of Minnesota	1983-1989

SIGNIFICANT AWARDS

• USDA National Institute of Food and Agriculture Hall of Fame	Inducted in 2022
• Fellow, American Association for the Advancement of Science (AAAS)	Inducted in 2007
• Fellow, World Aquaculture Society (WAS)	Inducted in 2017
• Chancellor's Medal, Outstanding Leadership, Syracuse University	2021
• Outstanding Achievement Award, University of Minnesota	2022
• Significant Contribution to National Animal Genome Program, USDA CSREES	2009
• Creative Research & Scholarship Award	2007

GRANT ACTIVITY

Research and academic efforts were continuously funded from 1995 through 2023, with a total of over 80 grants, totaling more than \$50 million, awarded by NIST, NSF, USDA, USAID, and various other federal and state funding agencies and industries.

SYNERGISTIC ACTIVITIES

1. Teaching and education: Taught *Molecular Genetics & Biotechnology*, and *Fish Genetics and Genetic Improvement*. Edited four books, two of which have been used as textbooks in aquaculture classes.
2. Student mentoring: Mentored 39 Ph.D. students, 10 master students, and 63 postdoctoral fellows or scholars serving as major professor, and additional 34 graduate students as committee member.

3. Editorial: Editor-in-Chief: Marine Biotechnology; Associate Editor: BMC Genomics; Aquaculture.
4. National leadership: USDA National Aquaculture Genome Coordinator, 2000-2017; Advisory Panel, Oceans and Human Health Initiative, NOAA, 2006-2012.
5. Published 349 journal articles and book chapters that have had over 19,000 citations.

SELECTED PUBLICATIONS

1. Wang W, Yang Y, Tan S, Zhou T, Liu Y, Tian C, Bao L, Xing D, Su B, Wang J, Zhang Y, Liu S, Shi H, Gao D, Dunham R, **Liu ZJ**. 2022. Genomic imprinting-like monoallelic paternal expression determines sex of channel catfish. *Science Advances* 8: eadc8786. DOI: 10.1126/sciadv.adc8786
2. **Liu ZJ**, Liu S, Yao J, Bao L, Zhang J, Li Y, Jiang C, Sun L, Zhang Y, Zhou T, Zeng Q, Fu Q, Gao S, Li N, Wang R, Koren S, Jiang Y, Zimin A, Xu P, Phillipy AM, Geng X, Song L, Sun F, Li C, Wang X, Chen A, Jin Y, Yuan Z, Yang Y, Tan S, Peatman E, Lu J, Qin Z, Dunham R, Li Z, Sonstegard T, Feng J, Danzmann RG, Schroeder S, Scheffler B, Duke MV, Ballard L, Kucuktas H, Kaltenboeck L, Liu H, Armbruster J, Xie Y, Kirby ML, Tian Y, Flanagan ME, Mu W, and Waldbieser GC. 2016. The channel catfish genome sequence provides insights into evolution of scale formation in teleosts. *Nature Communications* 7:11757.
3. Zhang X, Yuan J, Sun Y, Li S, Gao Y, Yu Y, Liu C, Wang Q, Lv X, Zhang X, Ma KY, Wang X, Lin W, Wang L, Zhu X, Zhang C, Zhang J, Jin S, Yu K, Kong J, Xu P, Chen N, Zhang H-B, Sorgeloos P, Sagi A, Warren A, **Liu ZJ**, Wang L, Ruan J, Chu K, Liu B, Li F, and Xiang J. 2019. Penaeid shrimp genome provides insights into benthic adaptation and frequent molting. *Nature Communications* 10:356.
4. Zhou T, Li N, Jin Y, Zeng Q, Prabowo W, Liu Y, Tian C, Bao L, Liu S, Yuan Z, Fu Q, Gao S, Gao D, Dunham R, Shubin NH, and **Liu ZJ**. 2018. Chemokine C-C motif ligand 33 is a key regulator of teleost fish barbel development. *Proceedings of the National Academy of Sciences* 115 (22): e5018-e5027.
5. Waldbieser G, Liu S, Yuan Z, Older C, Gao D, Shi C, Bosworth B, Li N, Bao L, Kirby M, Jin Y, Wood M, Scheffler B, Simpson S, Youngblood R, Duke M, Phillipy A, Koren S, and **Liu ZJ**. 2023. Reference genomes of channel catfish and blue catfish reveal multiple pericentric chromosome inversions. *BMC Biology* 21: 67.
6. Bao L, Tian C, Liu S, Zhang Y, Elawad A, Yuan Z, Khalil K, Sun F, Yang Y, Zhou T, Li Ning, Tan S, Zeng Q, Liu Y, Li Y, Li Y, Gao D, Dunham R, Davis K, Waldbieser G, and **Liu ZJ**. 2019. The Y chromosome sequence of the channel catfish suggests novel sex determination mechanisms in teleost fish. *BMC Biology* 17: 6.
7. Xu P, Zhang X, Wang X, Li J, Liu G, Kuang Y, Xu J, Zheng X, Ren L, Wang G, Zhang Y, Huo L, Zhao Z, Cao D, Lu C, Li C, Zhou Y, **Liu ZJ**, Fan Z, Shan G, Li X, Wu S, Song L, Hou G, Jiang Y, Jeney Z, Yu D, Wang L, Shao C, Song L, Sun J, Ji P, Wang J, Li Q, Xu L, Sun F, Feng J, Wang C, Wang S, Wang B, Li Y, Zhu Y, Xue W, Zhao L, Wang J, Gu Y, Lv W, Wu K, Xiao J, Wu J, Zhang Z, Yu J, and Sun X. 2014. Genome sequence and genetic diversity of the common carp, *Cyprinus carpio*. *Nature Genetics* 6(11):1212-1219.
8. Wang S, Abernathy J, Waldbieser G, Lindquist E, Richardson P, Lucas S, Wang M, Li P, Thimmapuram J, Liu L, Vullaganti D, Kucuktas H, Murdock C, Small B, Wilson M, Liu H, Jiang Y, Lee Y, Chen F, Lu J, Wang W, Peatman E, Xu P, Somridhivej B, Baoprasertkul P, Quilang J, Sha Z, Bao B, Wang Y, Wang Q, Takano T, Nandi S, Liu S, Wong L, Kaltenboeck L, Quiniou S, Bengten E, Miller N, Trant J, Rokhsar D, **Liu ZJ**. 2010. Assembly of 500,000 inter-specific catfish expressed sequence tags and large scale gene-associated marker development for whole genome association studies. *Genome Biology* 11 (1): R8.
9. Li Y, Liu S, Qin Z, Waldbieser G, Wang R, Sun L, Bao L, Danzmann R, Dunham R, and **Liu ZJ**. 2015. Construction of a high-density high-resolution genetic map and its integration with BAC-based physical map in channel catfish. *DNA Research* 22:39-52.

10. Xu P, Wang S, Liu L, Thorsen J, Kucuktas H, and **Liu ZJ**. 2007. A BAC-based physical map of the channel catfish genome. *Genomics* 90:380-388.
11. Zeng Q, Fu Q, Li Y, Waldbieser G, Bosworth B, Liu S, Yang Y, Bao L, Yuan Z, Li N, and **Liu ZJ**. 2017. Development of a 690K SNP array in catfish and its application for genetic mapping of 250,000 markers and validation of the reference genome sequence. *Scientific Reports* 7: 40347.
12. Geng X, Sha J, Liu S, Bao L, Zhang J, Wang R, Yao J, Li C, Feng J, Sun F, Sun L, Jiang C, Dunham R, Zhi D, and **Liu ZJ**. 2015. A genome-wide association study in catfish reveals the presence of functional hubs of related genes within QTLs for columnaris disease resistance. *BMC Genomics* 16:196.