



DEFINING THE NEW NORMAL

The concept of "normal" has been redefined for all of us. For many of the faculty, staff, and students at Texas A&M University-Central Texas, the new normal includes continuing to press forward with research pursuits.



A MESSAGE FROM OUR PRESIDENT

As Texas A&M University – Central Texas enters its second decade as a public, regional university, and a member of The Texas A&M University System, it continues to embrace and refine its unique role as the state’s only upper-level university. All of its undergraduates transfer into the university at the junior level, most from the region’s community colleges, but many as well from across the state and nation. Together with students entering graduate programs, they form an exceptionally diverse demographic of ethnicity, age, background, and educational pathways, with many of them military veterans and family members. Since 2009, more than 8,200 of them have earned undergraduate or graduate degrees, and the number is steadily growing.

By broadening educational access for its students, Texas A&M University-Central Texas is also fulfilling a commitment to the large expanse of Central Texas that it serves, and where 75% of its students reside. That commitment has been to strengthen the region’s workforce by providing exceptional pathways to educational scholarship for its students, including opportunities to engage in meaningful research. Those opportunities continue to expand at both the undergraduate and graduate levels, ranging from high level research in areas such as renewable energy and cybersecurity, to more regional applications of research focusing on the practical needs of local government, education, health care, and the military.

The growing range and quality of research on campus is directly attributable to the quality of faculty who have been attracted to the university, and to the academic leadership and support provided for them. Their scholarship and research, and that of their students, will have a lasting impact on the region, with planning now well under way for the development of an innovation district and research park that will foster public, private, and military collaboration in scholarship and research on the university’s campus for many years to come.

A handwritten signature in black ink, reading "Marc A. Nigliazzo".

Dr. Marc A. Nigliazzo
President

Texas A&M University-Central Texas



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A NOTE FROM THE VP OF RESEARCH AND ECONOMIC DEVELOPMENT

It is my honor to share this report, and especially with Dr. Dalila Salazar our Managing Editor, which highlights only a small amount of the outstanding research conducted at Texas A&M University-Central Texas.

In this issue you will read about research from all of our colleges and graduate school that represent local, state, national and international endeavors to continuously improve our lives, our teaching, and our world. With research collaborations that include within our own university, within our Texas A&M University System, within Texas, and beyond, you will find that our researchers are service oriented to help other researchers in their research projects.

One cultural change we are starting in 2021 is to request all potential grants and contracts to include a “research” component – that can be as small as 10% of the project with an oral history, or as complex as a structural equation modeling at 90% or more of the project. An example might be a police department grant for new equipment that could include a faculty member and graduate student assessing pre-post outcomes due to the equipment.

The cultural change in adding research to our future grants and contracts is already sparking discussion within our community to reach out to our faculty and staff and engage in future research, to include those faculty and staff, as well as our graduate and undergraduate students where appropriate. You will see the 2021 change in our new grants and contracts approval process that includes our pre-approval form that now requests if you have thought about including “Restricted Research” (RR) in your grant or contract. That RR can be qualitative or quantitative research and the reason for generating that RR is that the Texas Higher Education Coordinating Board (THECB) will send us an additional amount of research dollars at approximately 10% of the total RR as a new source of indirect funds. All Principal Investigators (PI) or Project Directors (PD) generating RR funds will receive their respective amount of indirect dollars from the new THECB funds. We are excited about this new funding source from the THECB with more to follow on the specific implementation process.

I know the research presented in this next edition of The Light will be informative and inspirational for all of us. From the Office of Research and Economic Development, we wish you a very prosperous New Year and please Stay Safe as we hopefully decrease the COVID-19 pandemic in 2021.



Dr. Russell Porter
Professor of Business
Vice President of Research and Economic Development

AN UPDATE FROM THE OFFICE OF RESEARCH AND ECONOMIC DEVELOPMENT



Dr. Walter Murphy
Adjunct Faculty in Psychology
Executive Director for Research and
Sponsored Programs, Deputy CRO/RCO

Our Office of Research and Economic Development works to enhance research opportunities for the whole university and to support university researchers at all levels. We help with grant development, with assistance from A&M's Office of Sponsored Research Services. We maintain the university's research funding and administration databases; so far for Academic Year 2021 and beyond, sponsors have committed nearly \$4.3 million in grant and contract funds to A&M Central Texas researchers among the 3 colleges and graduate school, the library, and the University Center for Applied Research and Engagement. Those funds include federal and state agencies, private foundations, local and national companies, and the A&M System. We also oversee all research compliance and ethics; our Institutional Review Board and the Institutional Biosafety Committee are in place and we are planning for an Institutional Animal Care and Use Committee in the future. Typically, we support research conference attendance and laboratory work by providing funds to the colleges for faculty and staff and by acting as the liaison to the A&M systems' annual Pathways student research conference and the biennial Texas Undergraduate Research Day, and during the Warrior Week celebration, holding a competitive student research forum to showcase student research to the university community. This year, our office created a set of opportunities for undergraduate and graduate students to engage with faculty and staff in online research projects and developed a set of guidelines for safe research practices during the COVID-19 crisis to enable our researchers to maintain their ongoing work. Below you will find a listing of all the individuals in the Office of Research and Economic Development.

Office of Research and Economic Development

Dr. Russell Porter

Vice President of Research and Economic Development, IO/CRO/RCO

Dr. Walter Murphy

Executive Director for Research and Sponsored Programs, Deputy CRO/RCO

Dr. Taylor Harvey

Regional Director of Texas A&M Engineering Experiment Station (TEES)

Dr. Dalila Salazar

Director of the University Center for Applied Research and Engagement (UCARE)

Dr. Michelle Dietert

Chair of the Institutional Review Board (IRB)

Dr. Julie Kresta

Chair of the Institutional Biosafety Committee (IBC) and Director of Research Safety

Dr. Laura Weiser-Erlandson

Chair of the Institutional Animal Care and Use Committee (IACUC) (Forthcoming)

Ms. LaTreice Frederick

Executive Assistant to the Vice President of Research and Economic Development

University Center for Applied Research and Engagement (UCARE)

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Dr. Jeff Kirk, Faculty Fellow

Dr. Barbara Altman, Faculty Fellow

Dr. Walter Murphy, Faculty Fellow

Dr. Vinay Gonela, Faculty Fellow

Dr. Taylor Harvey, Faculty Fellow

Ms. Claudia M. Mora Pineda, Senior Research Associate

Ms. Rayne Davis, Undergraduate Research Intern

Ms. Angela Koestens, Undergraduate Research Intern

Ms. Amber Perkins, Undergraduate Research Intern

Mr. Eugene Smith, Undergraduate Research Intern

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Dr. Linh Pham, Vice Chair

Dr. Angela Patrick, Member

Dr. Walter Murphy, Member

Dr. Don Daniels, Member

Dr. Manish Aligeti, Member

Institutional Review Board (IRB)

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Dr. Dalila Salazar, Vice Chair

Dr. Coady LaPierre, Member

Dr. Chris Poole, Member

Dr. Samuel Fiala, Member

Dr. Liana Taylor, Member

Dr. Walter Murphy, Member

Dr. Anitha Chennamaneni, Member

Dr. Laura Weiser-Erlandson, Member

Dr. Anthony Fulmore, Member

Mr. Paul Turcotte, Member

Ms. Susan Bowden, Member

Rev. Samuel Powell, Member

Institutional Animal Care and Use Committee (IACUC)

Dr. Laura Weiser-Erlandson, Chair

Members TBD



STAFF SPOTLIGHT: The Founding of a Program and the Completion of a Book

Dr. Sanfrená Britt serves as the Chief Diversity Officer for Texas A&M University-Central Texas and is the CEO and Founder of the College Promise Program of Central Texas. She has an ardent passion for research in the area of educational psychology and believes it is a fundamental component in understanding human and social behavior and assisting those who need assistance with understanding academic citizenship. More specifically, Dr. Britt subscribes to the foundational perspective that qualitative evaluations in grounded theory ethnographies assist with understanding underlying issues that contribute to not only maladjustments in educational settings, but also to maladjustment to societal norms and underachievement in areas fundamental to economic success, such as education and vocation. The College Promise Program of Central Texas is the vehicle chosen by Dr. Britt to assist with creating a safe environment for understanding a successful manner in which students from low socioeconomic families become academic citizens, prepared to enter any classroom ready to learn.

Each individual who seeks to address the various differences in how the world is perceived should have the assurance that a label of dysfunction does not identify the totality of their successful outcomes and possibilities. Research assists in preparing both society and individuals to adjust and to explore various initiatives and approaches tailored to individuals who need assistance; and should not merely follow a path identified by a systematic diagnosis as the map for successful assimilation.

The College Promise Program of Central Texas prepares students to become world citizens. World citizens understand the need to reach beyond cultural differences and find commonalities that allow global collaborations. The beauty of each ethnic group is a demonstration of the uniqueness of the human experience. The ability to see physical and cultural differences as an asset, rather than a premise for prejudicial inequality is at the core of diversity. The goal is not to ignore racial uniqueness, ethnic diversity, and the relationships that develop as a result of understanding the richness offered by each; the goal is to explore and redefine preconceived perceptions of these differences and discover that we have more in common than we do in contrast.

Therefore, thorough exploration of cognitive processing, detailed psychological assessment, family and community history, and innumerable research connections to similar societal situations offer the elemental foundation for understanding how we learn and what hinders the successful transition of knowledge to wisdom. There must be a bridge built that connects experience with understanding and understanding with application. Dr. Britt seeks to find these connections and offer assistance for those who have not yet found their voice and continue to seek their purpose.

Adding to her accomplishments this past year, she published a book in collaboration with Dr. Jeremy Berry, Bill Yowell Junior Faculty Fellow in Clinical Mental Health Counseling. The book entitled *Cognitive Care Education* serves as an important guide for caring for the cognitively impaired along the entire continuum from professional healthcare to home-based care.

Dr. Sanfrená Britt earned her doctorate in Educational Administration in Higher Education from the University of Mary Hardin-Baylor and her Masters of Science in Counseling Psychology from A&M-Central Texas. In addition to her current position as executive assistant to the provost, Dr. Britt teaches as adjunct faculty for the departments of Educational Leadership and Human Development, and Counseling and Psychology at A&M-Central Texas, and as adjunct faculty for psychology at the University of Mary Hardin-Baylor. Dr. Britt is the recipient of numerous awards for her scholarly work, and recently received the Outstanding Qualitative Research award for her doctoral dissertation entitled, *Socioeconomic Inequality and Disadvantages in Education*. She began her career in higher education at A&M-Central Texas in 2012, and has served as an educator in the Central Texas area continuously since 1992.



Dr. Sanfrená Britt
Chief Diversity Officer and CEO/Founder of the College
Promise Program of Central Texas



COLLEGE OF ARTS AND SCIENCES

FROM THE DESK OF THE DEAN

2020 was a year of challenges, particularly for researchers in the midst of a pandemic. Nevertheless, faculty in the College of Arts and Sciences had a remarkably productive year. Over thirty peer-reviewed articles and four books at top presses were published or in-press this year. In the sciences our Bill Yowell Junior Faculty Fellow, Dr. Linh Pham, published five journal articles in Biochemistry, with two in journals with very high impact factors. Dr. Christopher Thron also had a very good year. His edited volume *Implementations and Applications of Machine Learning* was published by Springer Nature. He also produced seven articles on a wide range of topics in applied mathematics. In the social sciences Dr. Christine Jones has an article in the Journal of Archaeological Science and another as first author with Dr. Tammy Bracewell in Medicine, Science, and the Law. This was in partnership with Dr. Taylor Harvey and Dr. Aida Torabi using the electron microscopy lab. Dr. Liana Taylor's work on prisoner drug treatment participation is in The Prison Journal. In Social Work a new edition of Dr. Michael Daley's book on rural social work was published by Oxford University Press. Additionally, he had two articles published. Also in Social Work, Dr. Jeffrey Yarvis's book, *Combat Social Work*, was published by Oxford University Press. Remarkably, Dr. Yarvis also has published eight articles on PTSD research and related topics this year. In the humanities Dr. Allen Redmon contributed a chapter in *The Films of Costa-Gavras: New Perspectives* by the University of Manchester Press, and an article in *Film Criticism*. Dr. Timothy Hemmis contributed a chapter to *West: Exploring an American Regional Divide*, Kent State University Press. Dr. Luke Nichter, our Beck Family Senior Faculty Fellow, had his biography *Henry Cabot Lodge, Jr. and the Decline of the Eastern Establishment* published by Yale University Press. The scope and impact of the scholarly work being done across the disciplines of Arts and Sciences this year is truly exceptional.



Dean Jerry Jones

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- Vargas Tamayo, L., Thron, C., Fendji, J. L. K. E., Thomas, S. K., & Förster, A. (2020). Cost-Minimizing System Design for Surveillance of Large, Inaccessible Agricultural Areas Using Drones of Limited Range. *Sustainability*, 12(21), 8878.(2019 Impact factor: 2.576)
- Yarvis, J. (September, 2020/Tishrei 5781) "Nice Jewish Boys DO join the Army: Reflections on a 34-year Army Career." *The Jewish American Warrior* (Aleph Institute), Surfside, FL.
- Zhanglong Liu, Trang Tran, Linh Pham, Lingna Hu, Kyle Bentz, Daniel A Savin, Gail E Fanucci. Darunavir- Resistant HIV-1 Protease Constructs Uphold a Conformational Selection Hypothesis for Drug Resistance. *Viruses*, 2020, 12(11), 1275

SPOTLIGHT: Using Computational Mathematics to Solve Practical Technological Problems

Dr. Christopher Thron is an Associate Professor of Mathematics at Texas A&M University-Central Texas. His research over the course of 2020 involved the application of computational mathematics to the solution of practical technological problems.

Machine learning is the part of artificial intelligence that deals with training machines to make “intelligent” decisions based on data. “Implementations and Applications of Machine Learning” (Subair and Thron, eds; Springer Nature) discusses a variety of applications including automatic sign language recognition, facial recognition, and simulation of biological learning. Dr. Thron cowrote several chapters with African colleagues and graduate students, as well as one chapter on automatic budget verification with two A&M Central Texas Masters students. An ongoing collaboration with graduate student Eslam Hussein and colleagues at the University of Western Cape produced another paper: Hussein E., Thron C., Ghaziasgar M., Bagula A, and Vaccari M. (2020), “Groundwater Prediction Using Machine-Learning Tools.” *Algorithms* 1 (5).

Dr. Thron collaborated with colleagues from Cameroon and Germany in research on path planning for rechargeable drones used for agricultural surveillance and published two papers: Fendji JL, Bayaola IK, Thron C, Fendji MD, Förster A. (2020). Cost-Effective Placement of Recharging Stations in Drone Path Planning for Surveillance Missions on Large Farms. *Symmetry*. Oct;12(10), and Vargas Tamayo, L., Thron, C., Fendji, J. L. K. E., Thomas, S. K., & Förster, A. (2020). Cost-Minimizing System Design for Surveillance of Large, Inaccessible Agricultural Areas Using Drones of Limited Range. *Sustainability*, 12(21). Two A&M Central Texas Masters students were co-authors in the second paper. A separate project conducted with A&M Central Texas Masters student Khoi Tran and supported by the Air Force investigated the use of sensor networks to track multiple targets. Results are described in: Thron C, Tran K, Raquepas J. (2020) High Performance Low Complexity Multitarget Tracking Filter for a Array of Non-directional Sensors. *arXiv:2009.08310*.

In the area of statistical demographics, Dr. Thron worked with computer science Ph.D. student Monira Hamid from Alzaiem Alazhari University in Sudan to develop a system using R software for systematic analysis and visualization of categorical survey data. Together, the researchers demonstrated the usefulness of their system in, Hamid, M., Thron, C, Fageeri, S. (2020), “Status and Trends in University Education for Women in Sudan: a Graphical Data Analysis.” *Social Science and Humanities Open* 2 (1), ISSN 2590-2911.

Informal discussions with A&M Central Texas’ adjunct and Masters graduate Jordan Barry led to another publication, Thron, C. and Barry, J (2020). “A Visualizable, Constructive Proof of the Fundamental Theorem of Algebra, and a Parallel Polynomial Root Estimation Algorithm.” *International Journal of Mathematical Sciences and Optimization* (1), 757 -63.

Besides publications, Dr. Thron participated in three invited talks for two virtual conferences on Operations Research and Optimization in Nigeria. He also helped to put together an online pan-African “Data Science in Health” seminar that had 50+ active participants from Sudan. Seminar materials may be viewed [here](#).

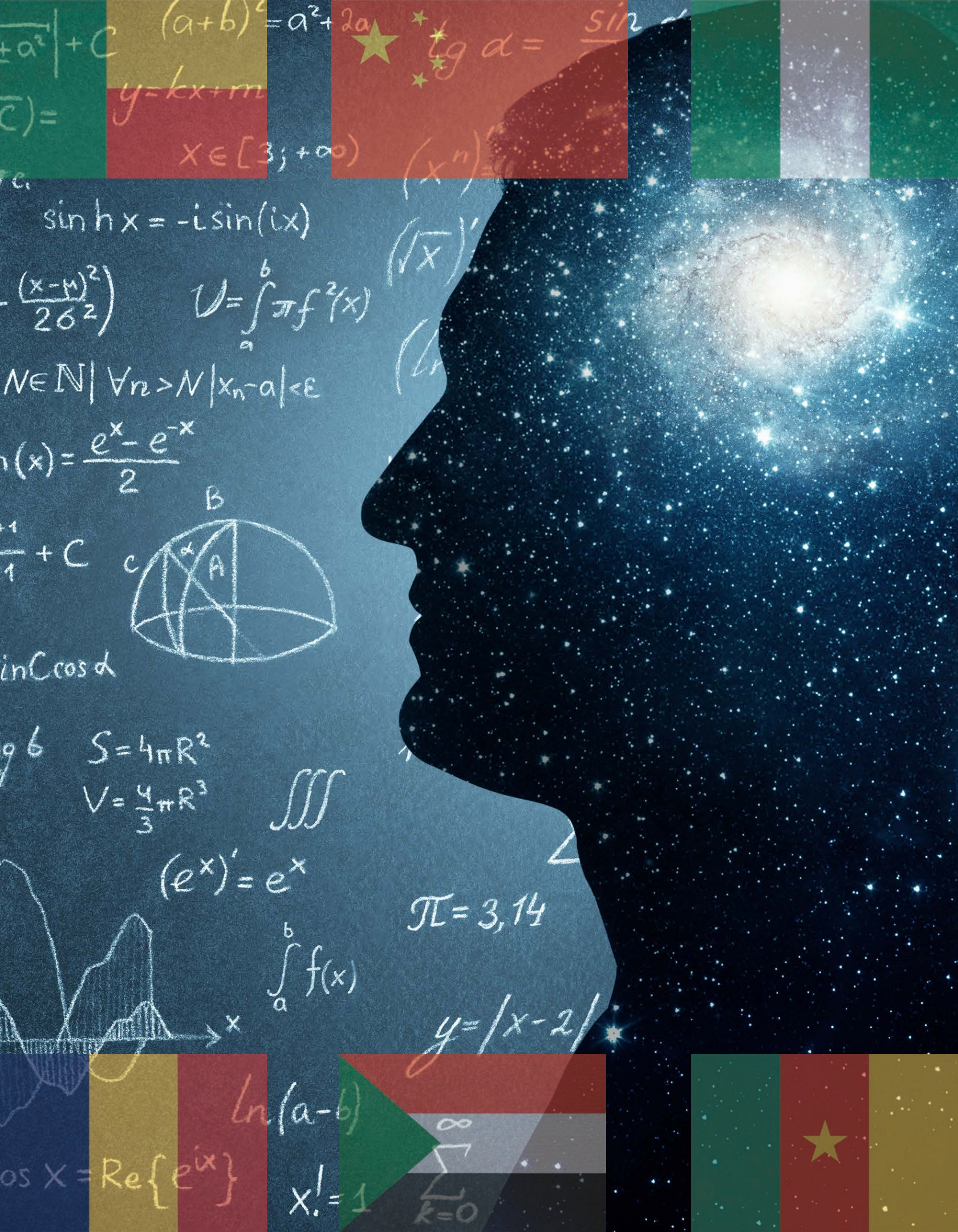
Dr. Christopher Thron received Ph.D. degrees in mathematics and physics from the University of Wisconsin, and the University of Kentucky, respectively. Before joining academia, he was a systems engineer with NEC America, Motorola, and Freescale.

Dr. Thron’s passion is the creative use of mathematics (especially computational mathematics) to solve important practical problems and improve quality of life. He places strong emphasis on mentoring up-and-coming researchers, and has co-authored research articles, national conference presentations, and one book with A&M-Central Texas students. Dr. Thron also has a long-standing interest in Third World development, and has taught courses and workshops in mathematics, statistics, and software in Benin, Cameroon, Chad, Nigeria, Sudan, and the People’s Republic of China. He has also collaborated on published research with faculty and other experts from those countries.

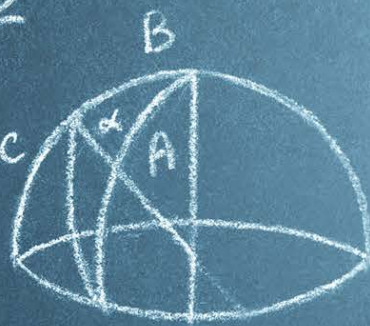
Mathematically, Dr. Thron’s focus areas include machine learning, operations research, stochastic optimization, agent-based modeling and algorithm design. Applications he has worked on include sensor networks, signal processing, target tracking, scheduling, epidemiological and social modeling, public health statistics, and foundations of quantum mechanics.



President Marc Nigliazzo and Dr. Chris Thron
Associate Professor of Mathematics



$$\begin{aligned} & \left| \pm a^2 \right| + C \\ & (a+b)^2 = a^2 + 2ab + b^2 \\ & y = kx + m \\ & x \in [3; +\infty) \\ & \lg a = \frac{\sin \alpha}{\cos \alpha} \\ & \sinh x = -i \sin(ix) \\ & U = \int_a^b \pi f^2(x) dx \\ & N \in \mathbb{N} \mid \forall n > N \mid x_n - a \mid < \varepsilon \\ & h(x) = \frac{e^x - e^{-x}}{2} \\ & S = 4\pi R^2 \\ & V = \frac{4}{3}\pi R^3 \\ & (e^x)' = e^x \\ & \int_a^b f(x) dx \\ & \pi = 3,14 \\ & y = |x-2| \\ & \cos x = \operatorname{Re}\{e^{ix}\} \\ & x! = 1 \\ & \sum_{k=0}^{\infty} \dots \end{aligned}$$





SPOTLIGHT: Remarkably Contributing to the Field of Psychological Trauma in Evidence-Based Treatment

Dr. Jeffrey Yarvis is an Associate Professor and the Director of External Plans for the Department of Social Work at Texas A&M University-Central Texas. He conducts research on evidenced-based treatments for PTSD and serves on the editorial boards of several peer-reviewed journals. Amidst his accomplishments in 2020 were the publication of a book, numerous journal articles, peer reviewed conference proceedings, and a keynote speech.

His book entitled "Combat Social Work: Applying the Lessons of War to the Realities of Human Services," is a collaborative effort with Dr. Charles Figley, Distinguished Chair in Disaster Mental Health, Director of the Traumatology Institute, and Professor in the School of Social Work at Tulane University, and Dr. Bruce Thyer, Distinguished Research Professor in the College of Social Work at Florida State University. The book describes the role, work, and lessons learned of social workers deployed to combat zones. It serves as a call to action for future social workers--and those who become military social workers--to effectively manage any moral and professional challenges they may face. The book consists of three sections: (1) understanding the context and irony of combat and social work, (2) 11 first-person case studies of combat social workers, and (3) exploring the training, education, and life of those who work in combat social work.

In addition, Dr. Yarvis had numerous peer-reviewed publications this past year. His publications appear in the following: *Journal of Traumatic Stress*, *Journal of Behavioral and Cognitive Therapy*, *Psychoneuroendocrinology*, *Sleep*, *Journal of Clinical Psychology*, *Cognitive Therapy and Research*, *Behavioral Therapy*, and *The Jewish American Warrior*. Specific references for these stellar explorations in the field of psychological trauma in evidence-based treatment may be found [here](#).

In terms of peer-reviewed proceedings, his study entitled "Prevalence and correlates of sleeping arrangements, satisfaction, and insomnia in U.S. military families with young children prior to deployment," was presented at the Military Social Work & Behavioral Health Conference in Austin, TX in April of 2020. Moreover, he served as the keynote speaker at Fordham University in the Bronx, NY with a presentation entitled "Teacher Talk: Military Social Work."

Colonel (ret) Jeffrey S. Yarvis, PhD, LCSW, ACSW, BCD, earned a PhD in Social Work from the University of Georgia, MSW in Clinical Social Work from Boston College, MS in Executive Leadership from Norwich University, M.Ed. in the Integrated Study of Curriculum and Instruction from Cambridge College, MSS in National Strategic Studies from the U.S. Army War College, and a BA in Psychology and Criminal Justice from Indiana University. Dr. Yarvis is a 35-year veteran leader in executive medicine, clinician, life-long educator and military social work scholar in the field of psychological trauma. A transformational leader, Dr. Yarvis has built, restored, and grown large medical organizations and optimized their performance. His dissertation titled "Subthreshold PTSD in Canadian Peacekeepers with Different Levels of Traumatic Stress" served as springboard into hundreds of international and national peer reviewed conference presentations and over one-hundred publications on the deleterious effects of Posttraumatic Stress Disorder (PTSD) and the reintegration of America's returning warriors to their families and to campus. Dr. Yarvis serves on the International Military Social Work Working Group; served on the Council of Social Education's (CSWE) Committee to Develop EPAs for Military Social Work; and is an active member of the National Association of Social Workers (NASW), Society of Social Work Research (SSWR), Academy of Health Care Executives (ACHE), Society for Social Work Leadership in Healthcare, and Fellow of the American Psychotherapy Association. Dr. Yarvis' awards include 2017 Global Health & Pharma Excellence Award in Veterans PTSD Research, 2015 DiversityMBA.org-Top 50 Executives Under 50, 2008 Uniformed Social Worker of the Year, 2007 US Army Social Worker of the Year, 1997 International Society for Traumatic Stress Studies (Bell/Coryell County Chapter) Mental Health Professional of the Year, 1996 Social Work Consultant to the Army Surgeon General's Social Worker of the Year, Military Alpha Designator as a Scholar in Social Work, the Legion of Merit, the Bronze Star Medal, the Combat Action Badge, and Order of Military Medical Merit. Dr. Yarvis holds Board Certifications in Clinical Social Work and Psychotherapy. He is a member of the Phi Kappa Phi, Omicron Delta Pi, and SALUTE National Honor Societies. Dr. Yarvis joins the faculty after a 34 year career with the U.S. Army culminating in command of a Brigade and a Combat Hospital. Since joining Texas A&M University- Central Texas, Dr. Yarvis published a book on "Combat Social Work" and a previous book on "Subthreshold PTSD."



Dr. Jeffrey Yarvis

Associate Professor of Social Work and Director of
External Plans for Social Work



COLLEGE OF BUSINESS ADMINISTRATION

FROM THE DESK OF THE DEAN

COBA Mission:

Our mission is to provide undergraduate and graduate business education to a diverse student population including representation from military affiliated backgrounds. By bringing together experts, we equip life-long learners with innovative and industry-relevant knowledge, positively engage with regional stakeholders, produce impactful relevant intellectual contributions, and inspire change agents to create a better world.

Here at COBA, we are aspiring to develop a triangulated approach- teaching, research and industry and we consider research to be the nerve center of our educational ecosystem. In fact, research is the driving force that helps students acquire differentiating skills and knowhow that are current and relevant to fulfill the needs of the industry and community. COBA hopes to provide a particularly fertile and stimulating environment to establish the perfect balance between academic excellence and research impact on students and business communities. Our faculty are highly committed to new knowledge production with practical implications to nourish the various fields of business and computing.

- Our research work allows for curriculum to be enriched with the latest knowledge, which is one of the stepping stones towards professional integration and success.
- The results of our research help businesses and institutions improve their economic and social efficiency.
- Both research and industry relevancy foster the emergence of new programs that tackle the new challenges managers and entrepreneurs have to face.



Dean Faiza Khoja

COBA SCHOLARSHIP HIGHLIGHTS

- AHSAN, M., Gupta, K. D., Nag, A. K. (2020). Applications and Evaluations of Bio-Inspired Approaches in Cloud Security: A Review. IEEE ACCESS, Digital Object Identifier 10.1109/ACCESS.2020.3027841. <https://ieeexplore.ieee.org/abstract/document/9209994>
- Asamoah, D., Takiiedine, S., Amedofu, M. (2020). Examining the effect of mobile money transfer (MMT) capabilities on business growth and development impact. Information Technology for Development, 26(1), 146--161.
- Caci, B., Dhou, K. The Interplay between Artificial Intelligence and users' personalities: A new scenario for human-computer interaction in gaming. 22nd International Conference on Human-Computer Interaction, Copenhagen, Denmark.
- Chennamaneni, A. (2020). "Privacy Concerns of Mobile App Users: An Empirical Study." Proceedings of the Americas Conference on Information Systems, Virtual Conference.
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- Dhou, K. (2020). A new chain coding mechanism for compression stimulated by a virtual environment of a predator-prey ecosystem. Future Generation Computer Systems, 102, 650--669.
- Dhou, K. (in press). An exploration of chess personalities in grandmasters and class-A players using virtual humans. International Journal of Entertainment Technology and Management.
- Dhou, K. A novel investigation of attack strategies via the involvement of virtual humans: A user study of Josh Waitzkin, an international chess grandmaster. 22nd International Conference on Human-Computer Interaction, Copenhagen, Denmark.
- Dhou, K., Kosara, R., Hadzikadic, M., Faust, M. (in press). The influence of decorations and word appearances on the relative size judgments of words in tag clouds. 17th International Conference on Modeling, Simulation and Visualization Methods (MSV20).
- Dwivedi, R. (2020). Analyzing Co-authorship Network for Homophily - Evidence from IS senior Scholar's Basket of Eight Journals for Business Analytics Research. (vol. 23). Association for Information Systems.
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- Fulmore, A. L., Boyle, D., Carpenter, B. (in press). A Roadmap of Professional Accounting Credentials. The CPA Journal.
- Fulmore, A. L. (in press). Examining Job Satisfaction and Organizational Commitment as Motivators of Unethical Pro-Organizational Behavior. Business and Professional Ethics Journal.
- Fulmore, J., Fulmore, A. L. (in press). Exploring the perceived influence of ethics education on ethical awareness and workplace behavior: An evaluation of undergraduate students. The Journal of Business and Finance Research.
- Gao, C., Gu, S., Yang, R., Yu, J., Wu, W., Xu, D. (2020). Interaction-Aware Influence Maximization and Iterated Sandwich Method. Theoretical Computer Science.
- Gonela, V., Altman, B. W., Zhang, J., Ochoa, E., Murphy, W., Salazar, D. (2020). Decentralized rainwater harvesting program for rural cities considering tax incentive schemes under stakeholder interests and purchasing power restrictions. Journal of Cleaner Production, 252. <https://www.sciencedirect.com/science/article/pii/S0959652619347134>
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- Hanby, C. M. (2020). Private Equity Performance in the United States. Journal of Applied Business and Economics, 22(1). <https://articlegateway.com/index.php/JABE/index>
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- Jancenelle, V. (in press). Dynamic Capabilities and Performance of Emerging Market International New Ventures: Does International Entrepreneurial Culture Matter? International Small Business Journal.
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- Knifton, C. & Porter, R. (2020). International Cognitive Care/Dementia Education: A Discursive Overview. IJCC V1(n2).
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- Yang, R., Gu, S., Gao, C., Wu, W., Wang, H., Xu, D. (2020). A constrained two-stage submodular maximization. Theoretical Computer Science.
- Yoon, T. E., Goh, S. H., Zinko, R., Furner, C. P. (2020). The Effects of Culture and Data Collection Mode on Socially Desirable Distortion and Confidentiality Concerns in Survey Research. Handbook of Research on Social and Organizational Dynamics in the Digital Era.
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SPOTLIGHT: Heightened Productivity in the Area of Influence Maximization

Dr. Shuyang Gu is an Assistant Professor in the Department of Computer Information Systems at Texas A&M University-Central Texas. She is interested in data science, especially computational social systems and data analysis. She has worked on algorithm design for optimization problems arising from data engineering, user behavior, and social problems in large-scale social networks. The research of social computing is motivated by the recent advancements in online social networks and the overall goal of her research is to provide effective and feasible solutions that are theoretically driven and high performing in practice.

Viral marketing has long been acknowledged as an effective marketing strategy. The development of online social networks such as Facebook and Twitter provide opportunities for large-scale online viral marketing in social networks. Under this circumstance, influence maximization has become a very popular research direction in the past decade, which could be described as the problem of finding a small set of most influential nodes so that the spread of influence in the network is maximized. Dr. Gu's current work extends the topic to more practical problems such as interaction-aware influence maximization, adaptive interaction-aware influence maximization, and active friending

Her research balances both theory and systems with an emphasis on developing efficient and effective algorithms for real-world problems motivated in social networks. She is fascinated with challenging real-world applications by mathematical modeling. Having completed 15 research papers on these topics, Dr. Gu has published in (or submitted to) reputable journals and conferences such as IEEE International Conference on Distributed Computing Systems (ICDCS), International Conference on Algorithmic Applications in Management (AAIM), and IEEE Transactions on Computational Social Systems (TCSS), etc. To read one of her most recent publications, [click here](#).



Dr. Shuyang Gu
Assistant Professor of
Computer Information System

Dr. Shuyang Gu received an M.S. and Ph.D. degree in Computer Science from the University of Texas at Dallas in May 2020; her Ph.D. studies were under the supervision of Professor Weili Wu. She received her BS degree in Electrical Engineering from North China Electric Power University in July 2003. Her research interests include computational social systems and data analysis.

SPOTLIGHT: Need a PEP Talk? A *Private Equity Performance* Talk, That Is

Dr. Martin Hanby is an Assistant Professor of Finance in the Department of Accounting, Finance, and Economics at Texas A&M University-Central Texas. In collaboration with Dr. Srinidhi Kanuri, an Assistant Professor of Finance at The University of Southern Mississippi, Dr. Hanby published a study in the *Journal of Applied Business and Economics* entitled, "Private Equity Performance in the United States."

The study focuses on performance of Private Equity indices in the United States. More specifically, the researchers use the Thomson Reuters Venture Capital and Thomson Reuters Buyout indices as proxies for U.S. Private Equity performance and compare them to U.S. stocks (Russell 3000) and bonds (Barclays US Agg Bond Index).

The researchers found that both private equity indices outperformed stocks and bonds and they have higher average and median monthly returns. However, private equity indices also had higher risk compared to stocks and bonds. On a risk-adjusted basis, private equity has outperformed stocks but underperformed bonds. Private equity has also created more wealth compared to stocks and bonds. Both the private equity indices also have significantly positive four-factor alpha. Results indicate that private equity has created tremendous value for investors. To read more about this study [click here](#).

Dr. Hanby received a Ph.D. in Finance from the University of Alabama in 2016, a Master of Arts in Economics from the University of Alabama, a Master of Science in Public Management with a specialization in Finance from Carnegie Mellon University, and a B.B.A. in Economics from Texas Tech University. Dr. Hanby's research interests include public pensions, and investments, focusing on investment practices and performance of public pension plans and private equity. Dr. Hanby has taught courses in Financial Management, Investments, Money and Capital Markets, International Finance, Financial Planning, Business Mathematics and Microeconomics. Prior to pursuing his Ph.D., Dr. Hanby enjoyed a career as a municipal finance investment banker working for Merrill Lynch, Citigroup, and PNC.



Dr. Martin Hanby
Assistant Professor of Finance





COLLEGE OF EDUCATION AND HUMAN DEVELOPMENT

FROM THE DESK OF THE DEAN

The College of Education and Human Development has a holistic view of research; much of the research done by members of the college is not the traditional scholarship of discovery that is commonly associated with university researchers. This reflects the multi-disciplinary and multi-focused nature of the college; its webpage indicates that its faculty are “committed to engaging in innovations, collaborative interdisciplinary programs, and research. The service to the profession and the greater community provided by our faculty is stellar.” CEHD faculty research has included projects related to national goals (e.g., a project to gain more knowledge about the experiences of women of color experiencing depression), state goals (e.g., a project helping teachers to enhance students’ agricultural literacy), local goals (e.g., a project for the Boys and Girls Club to enhance awareness of the opportunity they provide to local children and youth), and university goals (e.g., a project on developing better online instruction skills among the faculty). Many of these projects have been directed toward helping those in traditionally-underserved populations, which matches the student population at A&M Central Texas. Faculty also continue to write and publish in rigorous journals, despite the difficulty of adjusting their courses during the national pandemic. Some have even found the pandemic to be a source of research inspiration. The college has traditionally been a campus leader in supporting student research projects. A sizeable number of the theses done at the university have been through the masters program in experimental psychology, and the undergraduate bachelors program in psychology includes completion of a research project as a graduation requirement. Students in a number of undergraduate and graduate classes across the college must develop a complete research proposal, including plans for quantitative or qualitative analyses of the data to be generated, and this has led some graduates of these programs to go on to graduate programs, involving research at both the masters and doctoral levels. Students have also frequently had opportunities to work with faculty on their research; when the Office of Research and Economic Development created a program in Spring 2020 to provide opportunities for students to work remotely on faculty research, over half the faculty who offered their projects for consideration were from CEHD, showing the strength of the commitment of the college’s faculty to developing student researchers.



Dean Jeffrey Kirk

COEHD SCHOLARSHIP HIGHLIGHTS

Bunkowski, L., & Shelton, K. (2019). Mission, vision, and core values through online education: A case study on tribal college leadership. *Quarterly Review of Distance Education*, 20(4), 1-26.

Bunkowski, L. Doctoral Studies Student of the Year – College of Education and Human Development, Lamar University (awarded May 2020)

Chen, H. (accepted). Supervision in a Cross-Cultural Context: Story of a Taiwanese Female Postmodern MFT Faculty. In K. M. Quek & A. Hsieh (Eds.), *Intersectionality in Family Therapy Leadership: Professional Power, Personal Identities*. AFTA Springer Briefs in Family Therapy. 978-3-030-67976-7 (ISBN)

Clark, D.A., & Walker, K. (2020). Veterans in classrooms: Post traumatic stress, seating preferences, and achievement. *Journal of Veterans Studies*, 6(1). <https://doi.org/10.21061/jvs.v6i1.153>

Clark, D.A., & Murphy, W. (2020). The efficacy of a classroom game for teaching APA style citation. *Teaching of Psychology*. <https://doi.org/10.1177/0098628320977263>

Miller, J. M., & Youngs, P. (In Press). Person-organization fit and first-year teacher retention in the United States. *Teaching and Teacher Education*.

Miller, J.M. (In Press). Exploring the racial achievement gap on US history written-response state assessment items. *Social Studies Research and Practice*.

Miller, J. M., Youngs, P., Perrone, F., & Grogan, E. (2020). Using measures of fit to predict beginning teacher retention. *The Elementary School Journal*, 120(3), 399-421.

Taylor, C., & Bunkowski, L. (October 2020). Examining the Evolution of Key Characteristics in Faculty Mentoring Programs for Online Adjunct Faculty: Bridging the Distance. In Dailey-Hebert, A. E., & Mandernach, B. J., & Donnelly-Sallee, E. (Eds.) *Handbook of Research on Inclusive Development for Remote Adjunct Faculty in Higher Education*. IGI Global.

Notable Scholarship-Oriented Items:

Coady Lapierre, Professor

- a. Recent reviewer for Military Behavioral Health
- b. Featured "Spotlight" in the Texas School Psychologists Newsletter

Jeremy Berry, Associate Professor

- a. Played a formative role in establishing a new MOU with the Boys and Girls Club of Central Texas to define how we will partner with them to provide mental health services to the community with student clinicians.

Caroline Norris, Director of the Community Counseling and Family Therapy Center

- a. Converted the on-site clinical training model for graduate students training at the Community Counseling and Family Therapy Center to provide tele-counseling sessions through secure videoconferencing to members of the community.

Fran Hoffman, Assistant Director of the Community Counseling and Family Therapy Center

- a. Became a Board Certified Tele-Mental Health Provider



SPOTLIGHT: Adapting to the COVID-19 Environment

Dr. Caroline Norris is the Director of the Community Counseling and Family Therapy Center at Texas A&M University- Central Texas. She also works as a clinical faculty member forming part of the CACREP accredited Clinical Mental Health Counseling program.

Dr. Norris manages a counseling training clinic that serves an average 600 off-campus Killeen/Fort Hood community members annually. The counseling training clinic provides mental health and family counseling services by counselors in training. Areas of counseling include school counseling, marriage and family therapy, and clinical mental health counseling (CACREP accredited) programs. As part of this center, Dr. Norris trains approximately 40 student counselors annually, provides weekly individual and site supervision to practicum students, participates in the live observation and critique of student counselor counseling performance, builds standardized training processes targeted at assisting counselors in early phase of professional development, directly manages facility staff members including two graduate student workers and a full time assistant director, and adapts and innovates as needed to provide services appropriately to community members.

COVID-19 INNOVATION: During Texas Shelter-In-Place orders in the Spring of 2020, Dr. Norris virtually supervised the continued clinical training of 10 student counselors to meet program specific educational goals and learning outcomes remotely, connected students with access to professional tele-mental health training, and facilitated the provision of tele-counseling services to support the mental health needs of clients following the start of the pandemic under the first version of a telehealth counseling training clinic model implemented in the Community Counseling and Family Therapy Center.

During the Summer of 2020, she further adapted the on campus mental health training clinic into the second telehealth clinic conversion, a hybrid tele-health training clinic model, following the start of the COVID-19 pandemic. She successfully supervised the provision of confidential counseling sessions through video conferencing on a secure platform in the physical space of the Community Counseling and Family Therapy Center as students provided a total of 373 direct training hours of care to clients and received a total of 1,023.75 total training hours during Summer 2020 (10 week semester).



Dr. Caroline Norris

Clinical Faculty of Mental Health and Counseling

Dr. Caroline Austin Norris's identity is grounded in a love for helping others. She is a Nationally Certified Counselor and Licensed Professional Counselor in the state of Texas. Caroline received her PhD in Counselor Education from Texas A&M University - Corpus Christi (CACREP accredited), where she also received her masters degree in clinical mental health counseling (CACREP accredited), and a bachelors degree in psychology. As a clinical supervisor Caroline has supervised over 7,000 live counseling sessions, and supervised the provision of 600+ tele-counseling sessions through a secure video-conferencing platform since the start of the pandemic. Caroline previously served as the Assistant Director of the Counseling and Training Clinic at Texas A&M University-Corpus Christi, where she passionately supervised masters students for three years and counseled clients for four years. Her clinical background includes providing individual counseling to adults and adolescents, facilitating Dialectical Behavior Theory skills training groups, counseling couples using the Gottman approach to marital therapy and working with families as part of a community mental health program at the Antonio E. Garcia Center. In 2020 following the start of the COVID-19 pandemic, Caroline created and implemented a hybrid training model of supervision to expand services offered by the Community Counseling and Family Therapy Center. Because of her work adapting services offered by the center and training students in the provision of tele-health services clients were able to access counseling through tele-health services for the first time since the center opened its doors in 2012.



SPOTLIGHT: The Retention Rate Riddle

Dr. Jason Miller currently serves as an Assistant Professor in the Department of Curriculum and Instruction at Texas A&M University–Central Texas. His most current research entitled, "Person-organization fit and first-year teacher retention in the United States," published in the journal *Teaching and Teacher Education*, investigates the concepts of attrition and retention.

He notes that teacher attrition rates in the United States (U.S.) have remained fairly high since the 1980s. There are several problems that arise from high levels of beginning teacher turnover. First, novice teachers, on average, are less effective than more experienced teachers. Second, schools with higher levels of teacher turnover, especially among novice teachers, lack the sustained relational continuity between and among teachers, students, and families that allows them to establish norms for professional conduct, student behavior, and parental involvement. Third, schools with higher levels of teacher attrition incur large financial costs when continuously recruiting, hiring, and developing new teachers.

The purpose of the study was to determine the strongest predictor of teacher retention for first-year teachers (FYT) in this study's data and explore whether FYTs' perceptions of Person-Organization Fit (P-O fit) were associated with teacher retention. Researchers drew on survey data from FYTs who had graduated from five teacher preparation programs in three states in the U.S.: Connecticut, Michigan, and Virginia. Researchers found that perceived P-O fit had a stronger association with FYT retention than school characteristics, teacher characteristics, principal observation, or mentoring support.

P-O fit theory focuses on investigating how the similarity between profiles of individuals and employing organizations is associated with worker hiring, job fulfillment, job productivity, and decisions to stay at or move away from the organization. In teaching, P-O fit refers to whether a focal teacher's professional goals, interests, and/or approach to teaching are similar to those of other teachers at their school, whether they value and identify with other teachers at their school, and whether they feel valued by others at their school. While P-O fit has been widely studied in I-O psychology research on employee retention outside of K-12 education, it is an understudied construct in K-12 teacher retention research. As a result, it is important to examine P-O fit as well as other measures of fit that may predict whether teachers remain at or leave their schools as the retention of early career teachers continues to be a challenge.

The data for this study comes from a larger, four-year, longitudinal, mixed-methods study that includes teaching candidates and program graduates from five universities. Survey and retention data were collected from 159 FYTs who came from this pool of teaching candidates. This study analysis included linear and logistic regression models as well as four groups of variables: a) measures of P-O fit, b) school characteristics, c) teacher characteristics, and d) measures of principal observations and mentoring.

This study found that the higher-level of perceived P-O fit between FYTs and their teaching colleagues, the more likely the FYTs were to stay at their school of origin. Additionally, the P-O fit between FYTs and their teacher colleagues was a stronger predictor of FYT teacher retention than several school characteristics, teacher characteristics, principal observation activities, and mentoring-related activities. This finding suggests, first, that principals and district administrators may want to focus on policies and practices that build FYTs' perceptions of P-O fit with their teaching colleagues. Second, that teacher education programs may want to embed learning experiences in their preparation programs that focus on developing teaching candidates' understanding of their professional goals, identities, and interests. And third, school-level administrators may want to utilize information-rich hiring practices or accurate job previews that have been found to predict higher-levels of P-O fit and teacher retention, during the teacher hiring process. To read the full study, [click here](#).



Dr. Jason Miller

Assistant Professor of Curriculum and Instruction

Dr. Jason Miller earned a Ph.D. in Curriculum and Instruction from the University of Virginia. Dr. Miller's research interests include teacher education; features of teacher preparation programs; teacher retention; relationships between teachers; assessment; and, social studies education. Dr. Miller's recent publications have appeared in *Teaching and Teacher Education*, *The Elementary School Journal*, *Social Studies Research and Practice*, and *The Journal of Social Studies Research*.



THE GRADUATE SCHOOL

FROM THE DESK OF THE DEAN

While the pandemic has temporarily put a stop to some of the familiar on-campus Graduate School activities, graduate research has continued at the institution, despite the unusual challenges working remotely has created. Recently, the Graduate School was proud to facilitate a research project in collaboration with the Military Child Education Coalition (MCEC). The Graduate School sponsored two researchers, Associate Professor Dr. Andria Schwegler from the College of Education and Human Development, and Ms. Rebecca Hopkins, Graduate Assistant-Research for the Master of Science in Educational Psychology program, as they provided data review and analysis for the Military Kids Now 2020 Survey Summary Report. The survey included responses from more than 5100 military-connected students, parents, and professional/school personnel, representing 21 countries, including all 50 states and two territories of the United States. The report may be found at <https://www.militarychild.org/mcecsurvey>

Annually, the Graduate School provides funding for more than 40 semesters of assistantships. If you want to work with our graduate faculty, speak with your graduate program coordinator, contact the Graduate School, or apply through Hire Warriors for Students at <https://tamuct.joinhandshake.com/login>



Dean Kellie Cude



SPOTLIGHT: One of our students represents our University at Texas Undergraduate Research Day

Under the direction of Dr. Mienie Roberts, Associate Professor of Mathematics, Dr. Taylor Harvey, Chancellor's Assistant Professor of Research, and Dr. Aida Torabi, Assistant Research Scientist, Mr. James Sullivan, a Texas A&M University-Central Texas student, conducted research for his project entitled, "Image Analysis of Cathodoluminescence Data Obtained from a Photovoltaic Cell."

Mr. Sullivan presented his research as part of the 2021 Texas Undergraduate Research Day at the Texas State Capitol, in Austin Texas. The Texas Undergraduate Research Day, themed Transforming Texas through Undergraduate Research, was held virtually through the exhibition of high-quality poster presentations. Coordinated by the Council of Public University Presidents and Chancellors (CPUPC) and the Independent Colleges and Universities of Texas (ICUT), this program showcased 60 research projects which highlighted for Texas legislators how research conducted by undergraduate research students positively impacts Texas and Texans. Research was conducted across a wide variety of disciplines, reflecting the work of numerous undergraduate research students from over 47 academic and health related institutions, including public, private and/or independent universities and colleges. Student researchers selected to represent their respective institution at the event were chosen by a faculty liaison.

The following is the abstract highlighting Mr. Sullivan's work on the Texas Undergraduate Research Day website:

"The past year I built an application to analyze and visualize the characterization of the luminescence of solar cells. The Graphical User Interface can import data, create a heatmap to indicate high quality crystal structure, and output several variables of interest. The user can also create an interactive histogram and export the images/tables displayed. We collaborated with the Engineering Technology department to create an interactive application to upload a dataset and facilitate the data visualization process. The application is interactive, visual, dynamic, and assists research related to the development of efficient photovoltaic cells. We used the 'Shiny'-package in the R-software to create a tool to improve the speed of the analysis and visualization of a large and messy set of data. The application eliminates routine tasks, allowing more time for higher order thinking. As a result, the researchers can contextualize the data and draw conclusions from the heat maps and other outputs. The strength of the Shiny applications' framework is its reactive programming, which links input and output data such that changes to the input results in updates to the output area without having to refresh the program, allowing users to seamlessly explore data. Improvements are being made to the algorithms used to optimize the efficiency of the program. We are currently adding more tools to perform statistical analyses on the data, improving the user-experience in visualizing the data, and giving the user additional control over various aspects of the plots. I presented an earlier version of the application at the '2020 International Conference of Advanced Research in Applied Science, Engineering and Technology' and published the work in the Journal of Education and Social Development. We anticipate another article submitted to either the ACS Energy Letters journal or the ACS applied energy materials journal."



Hello, Reader!

Thank you for joining us in reading the latest issue of *The Light*. My editorial team and I were incredibly excited to highlight some of the scholarship that took place over 2020, even amidst a pandemic. It has been a whirlwind of a year, with many challenges and uncertainties. Normal has been redefined for each of us slightly differently, but it is truly amazing to observe how resilient and adaptive we are as a greater community. For the faculty, staff, and students on these pages, the redefinition of normal included pressing forward with scholarship pursuits.

As we move forward this new year, it is my hope that you find yourself motivated and willing to forge collaborative efforts with your current and future co-authors. I invite you to read through this issue of *The Light* and embrace its contents as a source of inspiration, growth, and, even, an avenue for potential idea-generation and/or future collaboration.

As the Director of the University Center for Applied Research and Engagement (UCARE), I am privileged and honored to be able to work with stellar subject matter experts within our University, across the Central Texas region, nationally, and internationally. I am delighted to be able to facilitate applied- and pure-research collaborations among all three of our colleges, graduate school, library, and public as well as private partners. Through this platform, I am certain more collaborations will sprout resulting from the dissemination of the notable research taking place on our campus.

I would like to formally thank each of our editorial board members for the time they contributed in making certain that the content in the issue draws your attention and engages your neurons! I would also like to thank each of the Deans for their support in making certain that this publication is a success. Finally, I would like to thank our President and our Vice Presidents for encouraging and enabling all of us to follow our passion in scholarship through pedagogical/andragogical ventures, interdisciplinary collaborations, applied research, and/or basic discovery.

As always, I look forward to meeting with you again on these pages in our future issue. It is my hope that, like our scholars, you get out there and do great things! May *your new normal* be filled with curiosity, wonder, and countless blessings!



Dr. Dalila Salazar
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