

MSEC MATTERS

Materials Science, Engineering,
and Commercialization Program



TEXAS STATE UNIVERSITY ISSUE VIII • 2025-2026

Fern frond image captured with CRO's Axia ChemiSEM using the concentric backscatter detector under low vacuum conditions. The circular features on the frond are known as "sporangia" which contain spores. When the spores are mature, the sporangia dry out and burst open to disperse the spores. The first image provides an overview of the fern surface (scale bar = 1 mm), and the inset is a magnified view of the sporangia (scale bar = 100 microns). The sample was fixed, dehydrated using the critical point dryer, and sputter coated with 2 nm of gold. Sample preparation and imaging was done one of our outstanding CRO Student Worker, Cat Blanco.



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*This issue includes data submitted to
MSEC Club & MSEC Staff between July
2025 through May 2026.*

Letter From the Director

Dear MSEC Community,

It is with great excitement and humility that I write to you for the first time as the new Director of the Materials Science, Engineering, and Commercialization (MSEC) program at Texas State University. I step into this role with deep appreciation for the strong foundation that has been built and gratitude for all who have contributed to it.

I want to first recognize and thank Regent's Professor Sean Kerwin for his tremendous leadership of MSEC. Under his direction, the program achieved record enrollment, expanded its faculty, and grew into a nationally recognized hub for materials research and innovation. Sean's vision and dedication shaped MSEC into what it is today, and we are all the beneficiaries of that work. We congratulate him on his well-deserved appointment as Associate Dean of Research — a role that speaks to the respect he has earned across our university community.

I am also pleased to share several changes and additions to the MSEC team. Professor Tania Betancourt, who was recently promoted from Assistant Professor, now serves as Associate Director, reflecting the significant contributions she has already made to the success of our program, its students, and faculty. We are also excited to welcome Associate Professor Yoichi Miyahara as our new Assistant Director. Yoichi brings a strong commitment to mentoring and supporting our students, and I look forward to working closely with both Tania and Yoichi as we continue to build on MSEC's momentum. Our administrative team is growing as well. Kelsie Noyer has been promoted from Administrative III to Business Manager, recognizing the important role she has played in keeping MSEC moving forward. We also welcome Jazi Jones as our new Administrative III. I am grateful to both of them for the work they do every day to support our students, faculty, and program. I also want to extend my sincere thanks to Karla Pizaña, our former Business Manager, for all she contributed to MSEC during her time with the program.

As we look ahead, our commitment remains the same: to support our students, faculty, and alumni in making meaningful contributions to materials science and the industries it touches — from electronics and energy to healthcare and beyond. These are new beginnings for MSEC leadership, but our mission and our community remain as strong as ever. In this latest issue of MSEC Matters, you will find highlights of the remarkable

work being done by our faculty, students, and alumni — from nationally recognized research awards to exciting new program developments. Our alumni continue to excel and serve as the finest ambassadors for everything MSEC represents, and we are so proud of all you are accomplishing.

We look forward to hearing from you and sharing this next chapter together.



A handwritten signature in black ink, appearing to read "Anthony Torres".

Dr. Anthony Torres, MSEC Program Director

IN MEMORIAM:

DR. THOMAS H. MYERS



It is with heavy hearts that we share the passing of Dr. Thomas H. Myers, a distinguished professor, researcher, mentor, colleague, former director, and friend whose vision, leadership, and dedication helped shape the foundation of materials science and research at Texas State University. Dr. Myers joined Texas State in 2008 as a Professor of Physics and founding Director of the Materials Science & Engineering program. He brought to Texas State a broad and distinguished research background in advanced electronic and energy materials growth, materials and surface science, and device fabrication, with a strong emphasis on interdisciplinary research. He received his PhD in Physics in 1983 from North Carolina State University. He served as Manager of General Electric's Infrared Materials and Devices Laboratory from 1987-1992. His cutting-edge work during this period included the development of prototype infrared focal plane array manufacturing. Prior to joining Texas State faculty, he held the Robert C. Byrd Professorship at West Virginia University for outstanding achievements in research and other scholarly activities, with impact on technology development, technology transfer, and commercialization.

Dr. Myers was hired as the first Director of the Materials Science and Engineering Program and led the proposal to establish the doctoral program in Materials Science, Engineering, and Commercialization (MSEC), which welcomed its first students in 2012. He spearheaded the creation of the Research Service Centers and championed shared facilities, laying the groundwork for today's Core Research Operations. He also served as Interim Chair of the Department of Physics and Associate Dean of Research in the College of Science and Engineering.

In 2018, Dr. Myers became Director of the Materials Application Research Center (MARC), continuing his commitment to advancing research, innovation, and interdisciplinary collaboration at Texas State. He retired from the university in 2020 and was recognized as a Distinguished Professor Emeritus in recognition of his significant contributions to the university and his field.

Dr. Myers was a recognized leader in Molecular Beam Epitaxy and in the fields of II-VI alloys for Infrared Materials, lead-based IV-VI semiconductor alloys, and group III-nitride materials with over 180 publications. Throughout his career, he made significant contributions to research and development and was a world expert in CdTe-based solar cells, with funding from, and strong collaborations with industry partners, including First Solar Inc., and DoE national labs. He taught materials courses, served as dissertation committee chair and advisor to numerous graduate students, and contributed his expertise and leadership through numerous committees and university initiatives.

For many of us, Dr. Myers was also a mentor and trusted colleague who generously shared his knowledge, guidance, and encouragement. His influence extended beyond his formal professional roles and can be seen in the many students, faculty, staff, research initiatives, programs, and facilities he helped develop.

Without Dr. Myers, MSEC would not be where it is today. His vision and leadership helped establish a program that has become an important part of Texas State University, and his influence will continue through the people and work he inspired.

We are deeply grateful for Dr. Myers' years of service to Texas State and MSEC, and for the lasting contributions he made to research, education, innovation, and mentorship. His scholarship, leadership, and dedication have left an enduring mark on the university and the many people fortunate enough to have worked with him.

Dr. Thomas Myers will be deeply missed, but his legacy will live on through MSEC, MARC, Core Research Operations, his research contributions, his former students and colleagues, and the many people whose lives and careers he helped shape.

Our thoughts and heartfelt condolences are with his family, friends, former students, colleagues, and all who had the privilege of working with and learning from him.

DEPARTMENT STAFF CHANGES



Dr. Sean Kerwin

Regents' Professor, Chemistry and Biochemistry - Associate Dean for Research, College of Science and Engineering

It is a pleasure to contribute a note to this issue of MSEC Matters reflecting on my time with MSEC and looking ahead to my new role as Associate Dean for Research in the College of Science and Engineering. I joined MSEC as a faculty member in 2020 and was appointed Interim Director in 2021. I served as director of MSEC from 2022 to the Fall of 2025. If a single word were to characterize this period in MSEC's trajectory, it would be growth. During this time, student enrollment doubled, and MSEC faculty achieved a nearly four-fold increase in externally

funded research awards. These outcomes reflect both strategic investment and sustained faculty commitment. I am deeply grateful to University leadership for their support of MSEC through the Run to R1 initiative, to the MSEC faculty whose dedication to mentoring students and advancing materials science and engineering scholarship made this progress possible, and especially to MSEC staff members whose dedication and hard work are essential to MSEC's success.

MSEC also grew substantially in national visibility and reputation. Applications to the program increased six-fold during this period, a testament to the strength of our curriculum, research mission, and community. I extend particular thanks to the faculty who served on the Admissions Committee and devoted considerable time and care to reviewing this growing applicant pool. Among many meaningful moments during my tenure, celebrating MSEC's 10th anniversary in 2022 stands out as especially significant. I look forward with confidence to the program's 15th anniversary in 2027 and the continued success it will surely mark. In my new role as Associate Dean for Research, I am eager to build on the collaborative and interdisciplinary model exemplified by MSEC as I broaden my focus to support the research enterprise across the College and the University. MSEC's structure—spanning multiple departments and partners—offers a powerful model for strengthening cross-cutting research initiatives. Its leadership in innovation and entrepreneurship will also inform my efforts to expand the College's intellectual property portfolio and deepen industry engagement for faculty and students alike. I leave MSEC with fond memories and full faith in the leadership of Director Anthony Torres and Associate Director Tania Betancourt. MSEC is in good hands and is poised for even greater things!



Karla Pizana

Assistant Director, MARC Operations

It is bittersweet to share that as of September 2025, I transitioned out of my role with the MSEC program to fully support Core Research Operations and the Materials Application Research Center within the Division of Research. While I am grateful and excited for this next chapter, MSEC has been such a meaningful part of my professional career that stepping away was not an easy decision. I joined MSEC in 2010 when the university first launched what has evolved into Core Research Operations. I was part of the team that established the MSEC PhD program in 2012 and supported its growth through the years. Of all the roles I held, the most rewarding was being a small part

of our students' journeys. I am grateful for the students, staff, faculty, and mentors I had the privilege of working with during my time in MSEC. I have learned so much from all of you. Although I have moved on from this position, I continue to cheer you on and celebrate your successes. I look forward to seeing all that you continue to accomplish!

DEPARTMENT STAFF CHANGES

Dr. Tania Betancourt

Associate Director



I am honored to transition from Assistant Director to Associate Director of the Materials Science, Engineering and Commercialization (MSEC) Program at Texas State University. Having been involved with the program since its early stages, I feel especially connected to its growth, mission, and long-term vision. I was hired in 2011, in part with the support of Dr. Tom Myers, the founding Director of MSEC, during the formative period following the program's approval, with the shared goal of expanding the interdisciplinary research capabilities of the university. It has been incredibly rewarding to witness the evolution

of the program from those early years into the thriving and rapidly growing community it is today.

Throughout my time with MSEC, I have had the opportunity to support multiple phases of the program's development. I worked closely with Dr. Jennifer Irvin during her tenure as Director, including supporting the program's first Academic Program Review in 2016–2017, which represented an important milestone in establishing and strengthening the program's academic foundation. More recently, I also contributed to the development of our current student guidelines regarding advancement to candidacy, with the goal of providing clearer pathways and stronger support structures for student success.

As I step into this new role at a particularly exciting moment—marked by substantial program growth and the university's impending achievement of R1 status—I look forward to leveraging my long-term involvement and institutional knowledge to further elevate the national and international stature of MSEC. I remain deeply committed to advocating for our students and continuing the work of ensuring they have the tools, mentorship, and opportunities needed to succeed both academically and professionally.

On a more personal level, I have had the honor of working closely with numerous MSEC students over the years, including serving as the principal research advisor for six of our MSEC alumni and as a member of many additional dissertation committees. Some of these students truly feel like family now. It has been a pleasure getting to know each and every one of them—not only through their academic and research accomplishments, but also through the many experiences that have helped shape the close-knit culture of our program. From annual potlucks where we have had the opportunity to learn more about one another's cultures, to witnessing the growth and evolution of the MSEC Student Club, to simply sharing laughter and playing table games together during the recent College 60th Anniversary celebration, these moments have made the MSEC community incredibly meaningful to me.

I also look forward to strengthening communication and engagement with our alumni so that we can continue building and maintaining a connected and supportive MSEC family. By fostering stronger relationships among current students, alumni, faculty, industry partners, and the broader community, I believe we can further increase the impact and visibility of the program while contributing meaningfully to innovation, workforce development, and the economic growth of our region.

DEPARTMENT STAFF CHANGES

WELCOME DR. MIYAHARA



Dr. Yoichi Miyahara

Assistant Director

I joined Texas State University in 2019 as a faculty member in the Department of Physics and as of August 2026, now serve as Assistant Director of the Materials Science, Engineering, and Commercialization (MSEC) Program. The MSEC program was one of the decisive factors in my decision to join Texas State because of its unique interdisciplinary approach to research and graduate education. My research focuses on quantum electronics, nanomaterials, thin-film growth, and advanced scanning probe microscopy characterization, with applications ranging from

semiconductor materials to emerging quantum technologies. I am particularly interested in understanding and controlling materials at the nanoscale to enable next-generation electronic and quantum devices.

Since joining Texas State, I have been committed to mentoring students and advancing research within the MSEC community. To date, I have graduated one MSEC Ph.D. student and am currently advising four MSEC graduate students whose research spans a range of materials science and engineering topics.

As Assistant Director, I am excited to help shape the future of the MSEC program by supporting student success, advancing graduate education, strengthening recruitment and admissions efforts, and fostering meaningful connections with industry and research partners. My goal is to help elevate MSEC's reputation as a leading interdisciplinary materials science program and increase its recognition on both the national and international stage. Texas State has built an outstanding materials science community, and I look forward to contributing to its continued growth while expanding opportunities for student training, research, and professional development. I am looking forward to working with you.

DEPARTMENT STAFF CHANGES



Kelsie Noyer

Business Manager

I joined the Materials Science, Engineering, and Commercialization Program as the Administrative Assistant III in September of 2017. Prior to joining the program, I worked in the Office of the University Registrar's Schedule of Classes Team, and then as an Administrative Assistant II in the Department of Finance & Economics in the McCoy College of Business. Upon joining MSEC I quickly fell in love with the work and the diverse group of faculty, staff, and students I have the pleasure of working with on a daily basis. My favorite part of the Admin Assistant role was watching students evolve from the time they sent their very first interest emails

to our program email address seeking guidance, to applying, and then joining our program and eventually graduating over the years. Being apart of a student's journey from application to graduation has always been the highlight of my time in MSEC; it truly makes me feel like a proud parent to watch them succeed in their academic journey and go on to do great things in their following careers. I was the Administrative Assistant III from September 2017 to October 2025, and after 8 years in my previous role I am excited to take on this new role of Business Manager in MSEC and serve students and faculty from a budget standpoint. This June marked my 10th year as an employee of Texas State University, and this September marks my 9th year in MSEC; I am so excited to continue my adventure in this program and see where the next 10 years takes us!



Jazina Jones

Administrative Assistant III

I joined the Materials Science, Engineering, and Commercialization program as a student worker in 2022. I came into the role knowing I wanted a job that would truly make an impact on me personally. I am now the Administrative Assistant III for the program, where I am able to support students even more than before. Stepping into this role has been a complete page turner for me. I enjoy helping students and serving as a vessel for the support they need to reach graduation. I am grateful for how far I have come, and I cannot wait to help many more students in the years ahead. I also want to say thank you to each and every student who has allowed me to support them during their time with MSEC.

MSEC Student Club



The MSEC Student Club is a welcoming student wing devoted to helping MSEC students grow both academically and professionally. During the 2025-2026 academic year, the club focused on creating opportunities that support professional development while strengthening the sense of community within the MSEC program. This year, the club inaugurated its activities by organizing a session to enlighten the students on the safety aspects of an organization. Later, to bring students together outside the classroom, we hosted a potluck that encouraged students and faculty to connect, share food from different cultures, and build lasting relationships. We also organized a panel discussion on prospective faculty positions, where faculty members shared valuable insights into academic career paths, the faculty recruitment process, and strategies for preparing a competitive academic portfolio. Looking ahead, the MSEC Student Club is excited to host a research poster conference that provides students with a platform to showcase their research, exchange ideas across disciplines, and strengthen their scientific communication skills. This year, the club is supported by four student committee members, including Maria Sultana (President), Moriom Afiza (Vice President), Shilma Mangira (Treasurer), and Alka

Subedi (Secretary). We look forward to welcoming new members and continuing to create meaningful opportunities for our students in the coming year.

Materials Research Society Chapter



The Materials Research Society (MRS) Texas State University Chapter had an active and productive year focused on strengthening the materials science and semiconductor research community at TXST. The chapter organized multiple academic and professional development activities, including invited seminars from industry and research experts, networking opportunities between students and faculty, and discussions on advanced semiconductor technologies and materials research. This year, the chapter successfully hosted Dr. Tulashi Dahal, Senior Research Scientist at Tokyo Electron America, for a seminar on Atomic Layer Etching (ALE) of metals and

dielectrics, promoting academic-industry collaboration and student engagement in semiconductor manufacturing research. The chapter also worked on expanding student participation, supporting interdisciplinary collaboration, and enhancing the visibility of materials science research at Texas State University. The chapter conducted its annual officer elections in spring 2026, resulting in the election of Biddhut Lamichhane as President, Mohammed Reaz Rahman Munna as Vice President, Md Mahamudujjaman as Secretary, and Arjun Sapkota as Treasurer.



MSEC Innovation Commercialization & Entrepreneurship Bootcamp

The Spring 2026 MSEC Innovation, Commercialization & Entrepreneurship Bootcamp once again challenged Texas State PhD students to think beyond the laboratory and into the marketplace. Over two days, doctoral students worked directly with venture capitalists, founders, angel investors, and startup operators to sharpen their ideas into scalable businesses. Led by Dr. Harlan Beverly, the annual bootcamp serves as a capstone-style commercialization experience for students pursuing innovation-driven ventures rooted in research, engineering, AI, healthcare, and advanced technology. Participants entered the program having already completed coursework in entrepreneurship and commercialization, arriving prepared with investor presentations, financial models, prototypes, and market validation.

Day One

The first day immersed students in the realities of startup fundraising, venture growth, and commercialization strategy through sessions led by experienced entrepreneurs and investors from across the Texas startup ecosystem. Speakers included:

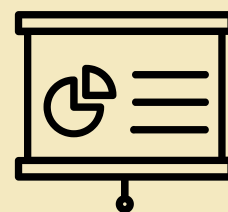
- Creighton Hicks of Live Oak Ventures, who discussed what venture capital firms look for in high-growth startups, emphasizing market size, scalability, customer pain points, and founder resilience.
- Steve Boyle of Essential Aero, who shared lessons from building technology ventures and navigating startup execution.
- Luis Martinez from Capital Factory, who provided guidance on startup networking, fundraising preparation, and founder visibility within the Texas innovation ecosystem.
- Aaron Perman of S3 Ventures, who walked students through venture capital metrics, growth expectations, and how investors evaluate traction and operational performance.
- Craig Cummings of Moonshots Capital, who explored leadership, founder psychology, and the traits that distinguish venture-scale entrepreneurs.
- Mark Paz from Texas State Communications, who coached students on high-pressure presentation skills, investor communication, and persuasive storytelling.

Throughout the sessions, students received feedback from the presenters about how to strengthen their business models, improve customer validation, and frame their technologies as solutions to significant market problems rather than simply impressive technical achievements. A recurring theme throughout the bootcamp was the distinction between “vitamins” and “painkillers” in startup investing: investors consistently emphasized that the strongest ventures solve painful, urgent, and expensive problems for customers. Students were also encouraged to demonstrate traction through prototypes, user engagement, surveys, partnerships, or early customer discovery efforts.

Day Two

On the second day, students competed in a rigorous multi-round startup pitch competition where they presented their commercialization ventures to panels of experienced judges and investors. The semifinal rounds featured presentations from doctoral students across engineering, AI, healthcare, biosciences, and software innovation disciplines. Finalists advanced to a championship round after extensive evaluation of their venture potential, defensibility, scalability, and investor readiness. Judges included:

- Robert Reeves, serial entrepreneur and co-founder of Liquibase and Datical
- Chris Palmisano, technology entrepreneur and recent PhD graduate
- Jennifer Newell, founder of Betty's Co., a wellness and lifestyle company focused on science-backed health products
- David Altounian, former CEO and co-founder of Motion Computing and entrepreneurship professor
- Kevin Haley of S3 Ventures
- Brian Madoff, founder and Managing Partner of MC3 Ventures
- Art Olbert, longtime IBM and Tivoli executive, angel investor, and CTAN mentor



Award Winners



After a highly competitive final round, the judges selected the following ventures as the top commercialization opportunities of the 2026 bootcamp:

First Place (\$500): Sujan Acharya — Keystone AI

An AI-powered platform that generates intelligent floor plans for pre-architectural planning, helping streamline early-stage design workflows and improve efficiency in the construction and real estate development process.

Second Place (\$250): Usama Khan — Particle Badge

A wearable AI-enabled particle exposure alert device designed to monitor environmental exposure risks and provide real-time safety alerts.

Tied for Second Place (\$250): Pritu Parna Sarkar — StressSense

A real-time cortisol sensing platform for at-home stress testing, enabling more accessible physiological monitoring and preventative wellness insights.

As Texas State continues expanding its innovation and entrepreneurship ecosystem, programs like the MSEC & CS Bootcamp are helping prepare a new generation of researchers to become founders, inventors, and venture leaders capable of shaping the future of technology and industry.

Welcome New MSEC Faculty



Dr. Xingwen Yu

Department of Chemistry
and Biochemistry



Dr. Hua Zhu

Department of Chemistry
and Biochemistry



Dr. Karl Stephan

Department of Engineering



Dr. Soumitra Basu

Department of Chemistry
and Biochemistry



Dr. Yongtao Dong

Department of Engineering



Dr. Stacey Kulesza

Department of Engineering



Dr. Wenting Cai

Department of Chemistry
and Biochemistry



Dr. Jenseo Choi

Department of Engineering
Technology



Dr. Xingzhou Guo

Department of Engineering
Technology



**Dr. Ming-Hsun
Lee**

Department of Physics



Dr. Yucheng Yuan

Department of Chemistry
and Biochemistry



Dr. Yuan Lu

Department of the Institute
for Molecular Life Sciences





MSEC Faculty Receiving Tenure and Promotion



Dr. Subasish Das
Assistant Professor to
Associate Professor
Ingram School of Engineering



Dr. Anahita Emami
Assistant Professor to
Associate Professor
Ingram School of Engineering



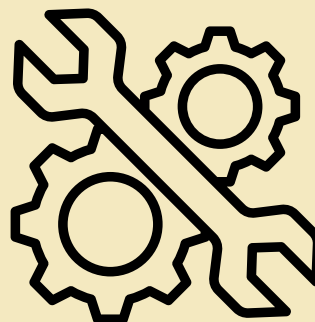
Dr. Hyunhwan Kim
Assistant Professor to
Associate Professor
Department of Engineering
Technology



Dr. Mithil Mazumder
Assistant Professor of Instruction to
Associate Professor of Instruction
Ingram School of Engineering



Dr. Xijun Shi
Assistant Professor to Associate
Professor
Ingram School of Engineering





STUDENT SPOTLIGHT AWARDS & ACHIEVEMENTS

BOBCATLYST GRANT

Six MSEC students, including Saif Al Arafin Taqy, Adedayo Alaga, Rujan Kayastha, Beng Wei Chong, Pratik Karkhanis, and Rahul Sheley, were honored with the distinguished BobCatalyst Innovation Accelerator Program (BIAP) award and BobCatalyst Proof of Concept Grant. These prestigious recognitions are bestowed on high-impact research with the potential to transition into breakthrough technologies.



ADEDAYO ALAGA & KEYA DAS

MSEC students became champions in both the oral and poster presentation categories at the 2026 Texas Society for Microscopy Conference. Adedayo Alaga secured first place in the oral presentation category, presenting his research on harsh-condition-compatible electronics, and Keya Das achieved first place in the poster presentation category, presenting her research on miRNA delivery.



GAURI MAHAJAN & TANZILA CHOITY

MSEC students Gauri Ravikant Mahajan and Tanzila Kamal Choity received the P.E.O. International Peace Scholarship. This distinguished scholarship, worth \$12,500, recognizes international female graduate students who demonstrate a commitment to improving the lives of women and girls in their home countries.



MD MAHAMUDUJJAN

Md Mahamudujjan achieved the best poster award at the Next-Generation Microelectronics and Interface Engineering for Integration Workshop at RICE University. There, he presented his research on the potential of perovskite materials as channel layers in MOSFET devices.





FACULTY SPOTLIGHT AWARDS & ACHIEVEMENTS



DR. XIJUN SHI

Dr. Xijun Shi was awarded the NSF Career Innovator award at the inaugural Texas Innovation Conference at Texas Christian University in Fort Worth. The award will advance recyclable biopolymer composite construction materials for use in resource-limited environments while educating future engineers in innovation and entrepreneurship. He also received a POC grant.



DR. ARIFUL HAQUE

Dr. Ariful Haque was named an Emerging Leader by the Editorial Board of the Journal of Physics D: Applied Physics. An emerging leader is a top researcher in their field who completed their PhD 10 years prior to invitation. He has been identified as the most exciting researchers in his generation.



DR. XINGWEN YU

Dr. Xingwen Yu has been recognized by Research.com in its 2026 rankings as one of the *Best 2,000 Scientists in Materials Science in the United States*. Currently Dr. Yu sits at 15,593 citations and 111 publications



DR. XIAOYU XUE

Published the article "*Multi-subunit collaboration enables Smc5/6 to function as a composite SUMO E3 complex*," co-authored with student Lillian Eliaz, in the prestigious journal, Nature Communications. Publications in the journal represent important advances of significance to specialists within each field.

Student Achievements

Adedayo Alaga

- Presented research titled “Microscopy Insights into Laser-Induced Dopant Incorporation in Polycrystalline Diamond” at the Texas Society for Microscopy Meeting
- Presented research titled “Mechanisms of Grain Boundary Assisted Doping in Diamond using Laser-Driven Non-Equilibrium Processing” at Texas State University
- Presented research titled “Multimodal Investigation of Laser-Induced Doping in Diamond - Performance Insights from Structural and Chemical Characterizations” at Texas State University
- Presentation titled “Revolutionizing EV Inverters through Diamond Engineering” at the BobCatalyst Innovation Acceleration Program, Texas State University
- Participated in the BobCatalyst Innovation Acceleration Program, Texas State University
- Participated in the Southwest iCorps Regional Program (Virtual): Recommended for the National Program
- Received The Graduate College Scholarship

Alka Subedi

- Presented research titled “XRD-Based Microstructural Characterization of Carbonate and Siliceous Aggregate in Concrete” at the Graduate Student Research Conference, Texas State University
- Presented research titled “Influences of Aggregate Type and Morphology on the Mechanical Performance of Concrete” at the 62nd Annual ASC International Conference
- Received the Student Government Scholarship

Anika Salsabiyl

- Presented research titled “Design of Energy-Efficient Low-Carbon Mortars with Enhanced Thermal Insulation” at the Texas State University STEM Conference

Arjun Sapkota

- Received the Student Government Scholarship

Beng Wei Chong

- Presented research titled “Waste eggshell valorization as limestone alternative for portland cement” at the Concrete Creativity and Continuity (C3) Symposium
- Presented research titled “Utilization of waste eggshell as a limestone alternative for high-volume incorporation in portland cement” at the 15th Advances in Cement-Based Materials, American Ceramic Society
- Received Bobcatalyst POC Grant: BioStabrix™- Recyclable Biopolymer Construction Materials, Texas State University (PI: Xijun Shi) – December 12th, 2025

Biddhut Lamichhane

- Presented research titled “Capacitance-Voltage Study of Carrier Compensation in GeC and GeCSn Alloys” at the Electronic Materials Conference
- Received the Student Government Scholarship

Bijay Khanal

- Presented research titled “Magnetism in Pt/Co/Cu Multilayers: Dependence on Co Thickness and the Influence of Additional Superconducting Nb Layers” at the UT MRSEC Annual Meeting
- Presented research titled “Magnetism in Pt/Co/Cu Multilayers: Dependence on Co Thickness and the Influence of Additional Superconducting Nb Layers” at the Graduate Student Research Conference, Texas State University
- Received the Excellence in Graduate Research Award, Texas State University Department of Physics

Eunice O. Babatunde

- Presented research titled “Coupled Adsorption and Dechlorination of TCE Vapors on Fe-Loaded Biochar” at the Groundwater Week
- Presented research titled “Soil Vapor Extraction and Biochar Adsorption for TCE Remediation under Varying Hydrogeochemical Conditions” at the Remplex PNNL
- Received the Doctoral Research Support Fellowship

Student Achievements

Farhana Easmin

- Received the Graduate Merit Fellowship

Fatema Tuz Zohora Toma

- Presented research titled “Flow-Induced Magnetic Anisotropy in 3D-Printed Strontium Ferrite/PA12 Magnetic Composites” at the Texas State University STEM Conference
- Presented research titled “Correlation between magnetic anisotropy and texture in 3D printed Strontium Ferrite/PA12 magnetic composites” at the Graduate Student Research Conference
- Received the Graduate Merit Fellowship
- Certificate of Excellence in Reviewing -- “International Journal of Environment and Climate Change”
- Certificate of Reviewing -- “Digest Journal of Nanomaterials and Biostructures”

Fereshteh Rahmani

- Presented research titled “Mechanistic evaluation of aggregate type and morphology on concrete metrics” at the 62nd Annual ASC International Conference
- Presented research titled “Impact of coarse aggregate properties on the performance of concrete pavements” at the Texas State University STEM Conference
- Presented research titled “Evaluating cradle-to-gate environmental impacts of river gravel and limestone as concrete aggregates” at the Graduate Student Research Conference, Texas State University
- Presented research titled “Evaluating TxDOT’s Pavement Asset Management Maturity Using ISO 55000 GFMAM, and FHWA Criteria” at the 62nd Annual ASC International Conference
- Received the Rising Scholarly Travel Activity and Research (S.T.A.R.) Grant

Firoz Ahmed

- Presented research titled “Understanding Surface Mediated Redox Chemistry in Charged Microdroplets” at the American Association for Aerosol Research

Ganesh Aryal

- Received the Doctoral Dissertation Completion Fellowship

Gauri Ravikant Mahajan

- Presented research titled “Quantification and Prediction of Pavement Flushing Using Surveying, Texture, and Traffic Data” at the Transportation Research Board 105th Annual Meeting
- Presented research titled “Prediction of Asphalt Pavement Surface Layer Modulus Using Long-Term Pavement Performance (LTPP) Falling Weight Deflectometer Data” at the Road Profile Users’ Group Conference
- Presented research titled “An Integrated Data-Driven Approach for Hydroplaning Risk Assessment in Asphalt Pavements Using Crash Narrative and Pavement Surface Texture Data” at the Road Profile Users’ Group Conference
- Presented research titled “A Systematic Literature Review on Cross-Slope and Grade Estimation Methods” at the Road Profile Users’ Group Conference
- Received the Student Government Scholarship
- Received The Graduate College Scholarship
- Received the Rising STAR Travel Grant
- Received PEO International Peace Scholarship Award

Gholami Hossein Abadi Ghazal

- Presented research titled “Enhancing Concrete Strength Prediction from Non-Destructive Testing Under Variable Curing Temperatures Using Artificial Neural Networks.” at the ACI Conference
- Presented research titled “Enhancing Concrete Strength Prediction from Non-Destructive Testing Under Variable Curing Temperatures Using Artificial Neural Networks.” at the Graduate Student Research Conference
- Presented research titled “Enhancing Concrete Strength Prediction from Non-Destructive Testing Under Variable Curing Temperatures Using Artificial Neural Networks.” at the UTeach STEM Educators Conference

Student Achievements

- Presented research titled “Reducing Carbon Footprint Through Binder Content Optimization in Durable Performance-Based Concrete Overlays” at the Graduate Student Research Conference
- Presented research titled “Reducing Carbon Footprint Through Binder Content Optimization in Durable Performance-Based Concrete Overlays” at the STEM Success Stories Conference
- Presented research titled “Reducing Carbon Footprint Through Binder Content Optimization in Durable Performance-Based Concrete Overlays” at the Texas Civil Engineering Conference
- Presented research titled “Reducing Carbon Footprint Through Binder Content Optimization in Durable Performance-Based Concrete Overlays” at the SPE International Polyolefins Conference
- Received The Graduate College Scholarship
- Appeared on the Student Research Spotlight by Charles Donnelly

John T. Miracle

- Received the Texas State Dissertation Completion Fellowship

Junaid ur Rehman

- Presented research titled “Enhanced TiO_2 Photocatalysis Under Visible Light: Electrospun and Vapor-Deposited Intrinsically Conductive Polymers for an Anionic and a Cationic Dye Degradation Under a Solar Simulator” at the UT-MRSEC
- Presented research titled “Solar-Active PAN/ TiO_2 /Electroactive Polymer Nanofibrous Membranes for Tunable Removal of Cationic and Anionic Dyes via Coupled Ionic Exchange and Photocatalysis” at the Texas Society for Microscopy Meeting
- Presented research titled “Vapor-Phase Oxidatively Polymerized Electroactive Polymers on Photoactivated Anatase TiO_2 /PAN Electrospun Nanofibers for Dye Removal Studies via Ionic Exchange, Photocatalysis and Adsorption” at the MRS Spring Meeting & Exhibit
- Received the SPE Scholarship Award

Keegan Bailey

- Presented research titled “Effects of Crystal Structure, Substituents, and Surface Reconstruction on Acidic Oxygen Evolution Electrocatalysts” at the Electrochemical Society

Kehinde Adewale

- Presented research titled “Exploring CO_2 Mineralization for Enhanced Fire Resistance in Cement-Based Materials Containing Slag Cement and Fly Ash Cenosphere” at the America Concrete Institute conference

Kendalle Howard

- Presented research titled “Exploring Surface Treatment Effects on Methanol Sensing in Alkaline Medium” at the Department of Energy Symposium, Texas State University
- Received the Department of Energy Symposium Poster Presentation award

Keya Das

- Presented research titled “Polyelectrolyte Complex Micelles (PCMs) for miRNA delivery in Neuroblastoma Cancer Cells” at the Texas Biomaterials Day, Rice University
- Presented research titled “Development of Poly (lactic-co-glycolic acid) (PLGA) Nanoparticles for Retinoic Acid Delivery in Neuroblastoma Cells” at the Texas State University STEM Conference
- Presented research titled “Polyelectrolyte Complex Micelles (PCMs) for miRNA delivery in Neuroblastoma Cancer Cells” at the Texas Society for Microscopy Meeting Conference
- Presented research titled “Polyelectrolyte Complex Micelles (PCMs) for miRNA delivery in Neuroblastoma Cancer Cells” at the UT MRSEC Annual Meeting
- Presented research titled “Conductive Polymer Nanoparticle Hyperthermia and Retinoic Acid Therapy for Neuroblastoma Treatment” at the Women in Catalysis and Synthesis Symposium
- Presented research titled “Nanoparticle-Enhanced Differentiation Therapy for Pediatric Neuroblastoma” at the Texas Soft Matter Conference
- Presented research titled “Synergistic Effect of Differentiation Inducing Retinoic Acid and Conductive Polymer Nanoparticle-Mediated Hyperthermia in Neuroblastoma Cells” at the PREM Day
- Achieved 5th place in the Bobcat Innovation Challenge pitch competition

Student Achievements

- Received 1st place at the Texas Society Microscopy conference
- Received a special recognition Award in a rapid-fire talk at the Texas Soft Matter Conference
- Achieved 3rd place for rapid-fire talk in conference across PREM-MRSEC Schools CAMPS
- Received The Graduate College Scholarship

Khorshed Alam

- Received the Student Government Scholarship

Leobardo Rodriguez

- Presented research titled “Triaxial Vibrating Sample Magnetometer (TVSM) Z Coil Design Considerations” at The Graduate Student Research Conference, Texas State University
- Submitted Provisional Patent
 - Leo Rodriguez, Wilhelmus Geerts, “Curved Vibrating Sample Magnetometer Sensing Coils”, 64/033,277, Texas State University

Lillian Eliaz

- Presented research titled “Promoting DNA damage repair: Characterizing binding between ZGRF1 helicase and RAD51 recombinase in homologous recombination” at the ABRCMS
- Presented research titled “The complex roles and regulation of R-loops in DNA damage repair by ZGRF1 helicase and BRCA1-BARD1” at the ASBMB
- Presented research titled “ZGRF1 helicase and BRCA1-BARD1 regulation of pathological R-loops in DNA damage repair pathways” at the Texas State University STEM Conference
- Presented research titled “Promoting DNA damage repair: Characterizing binding between ZGRF1 helicase and RAD51 recombinase in homologous recombination” at the Graduate Student Research Conference, Texas State University

Malay Kumar Das

- Presented research titled “Kinetic and Thermodynamic Insights into G Triplex DNA Stabilization by Porphyrin TMPyP4” at the PREM Day Conference
- Presented research titled “Thermodynamic Investigation of G Triplex DNA and Ligand Interactions” at the American Society for Microbiology ABRCMS
- Presented research titled “Thermodynamic Investigation of G Triplex DNA and Ligand Interactions” at the MRSEC Annual Meeting & Industry Day
- Presented research titled “Thermodynamic Investigation of G Triplex DNA and Ligand Interactions” at the Texas State University STEM Conference
- Received The Graduate College Scholarship
- Received the Student Government Scholarship
- First Time Author of a Peer Reviewed Technical Publication Award - Awarded by NSF Partnership for Research and Education in Materials (PREM), Texas State University
- Secretary, Society of Plastics Engineers Student Chapter, Texas State University (2025–26).
- Mentor, NSF PREM CIMA, Texas State University (2025–26)

Maria Sultana

- Presented research titled “An X-ray Photoelectron Spectroscopy-Based Investigation of Band Discontinuities at the Interface of $-(\text{In}_{0.15}\text{Ga}_{0.85})_2\text{O}_3$ (0002) and AlN (0002) Heterojunction” at the 8th United States Gallium Oxide Workshop
- Presented research titled “Growth of $\epsilon-(\text{In}_x\text{Ga}_{1-x})_2\text{O}_3$ on AlN via Pulsed Laser Deposition” at the IEEE International Conference on Emerging Electronics
- Presented research titled “Prospects of two-dimensional electron gas (2DEG) formation at $\text{Ga}_2\text{O}_3/\text{III-Nitride}$ heterojunction” at the INBRE conference
- Presented research titled “Growth of $\epsilon-(\text{In}_x\text{Ga}_{1-x})_2\text{O}_3/\text{AlN}$ Heterostructures using Pulsed Laser Deposition” at the INBRE conference
- Presented research titled “2DEG formation at the thin film heterojunction interface: Investigation based on the prospects of $\text{Ga}_2\text{O}_3/\text{III-Nitride}$ HEMTs” at the Next-generation Microelectronics and Interface Engineering for Integration

Student Achievements

- Presented research titled “Growth of ϵ -($\text{In}_x\text{Ga}_{1-x}$) $_2\text{O}_3$ on AlN via Pulsed Laser Deposition” at the IEEE International Women in Engineering (WIE) Conference on Electrical and Computer Engineering (WIECON-ECE)
- Presented research titled “Machine Learning-aided Suitable n-type Dopant Discovery for Diamond” at the Texas State University STEM Conference
- Presented research titled “Diamond Dopant Formation Energy Prediction using Advanced Machine Learning Models” at Graduate Student Research Conference, Texas State University
- Received The Graduate College scholarship
- Achieved 4th place in the Bobcat Innovation Challenge Pitch Competition
- Achieved 2nd place in the oral presentation in physics during the Arkansas INBRE Research Conference

Md Anisul Islam

- Presented research titled “SLA-based Fabrication of Anisotropic Magnetic Soft Composites for Actuator Applications” at the Joint Meeting of the Texas, Arkansas, Oklahoma Section of the APS (TAOAPS)

Md Ibrahim Khalil Tanim

- Received The Graduate College Scholarship

Md Mahamudujjaman

- Presented research titled “Triple Halide Perovskite MOSFETs: Fabrication, Characterization and Crystallization Dynamics on Diverse Substrates” at the Next-Generation Microelectronics and Interface Engineering for Integration Workshop
- Received the Student Government Scholarship
- Best poster award at Next-Generation Microelectronics and Interface Engineering for Integration Workshop at RICE University

Md Nasir Uddin

- Presented research titled “An interpretable machine learning technique to predict size effect and fracture behavior of concrete” at the C3 Symposium
- Received the Student Government Scholarship

Md Shamsul Alam

- Presented research titled “Aza-Bergman cyclization-derived diradicals: Trapping evidence from thermolysis of 1,5-dialkynylpyrazoles.” At the ACS Spring

Moriom Afiza

- Presented research titled “Immunomodulation by conductive polymer nanoparticles mediated photothermal therapy of cancer treatment” at the MRS Spring Meeting & Exhibit
- Presented research titled “Immunomodulation by conductive polymer nanoparticles mediated photothermal therapy of cancer treatment” at the Texas Biomaterials conference
- Presented research titled “Immunomodulation by conductive polymer nanoparticles mediated photothermal therapy of cancer treatment” at the Texas State University STEM conference
- Received the Bounita Favorite Society of Plastics Engineers South Texas Section Endowed Scholarship
- Received the Fall semester award 2026, awarded by the Department of Chemistry & Biochemistry

Noah Austin-Bingamon

- Presented research titled “Pendulum mode atomic force microscope in cryogen-free dilution refrigerator for single-electron sensitive electric force microscopy/spectroscopy” at the APS Global Physics Summit
- Presented research titled “Kelvin Probe Force Microscopy of Moiré Electrostatic Potential on Twisted Hexagonal Boron Nitride Multilayers” at the TechConnect World Innovation Conference & Expo

Pallab Kumar Sarkar

- Presented research titled “Localized Pulsed Laser Annealing for Low-Resistance Ohmic Contacts on Sn-doped β -Ga $_2\text{O}_3$ ” at the MRS Spring Meeting & Exhibit

Student Achievements

- Presented research titled “Interface Engineering for Void-Free Diamond Integration on Gallium Oxide via HFCVD” at the MRS Spring Meeting & Exhibit
- Presented research titled “Low-Resistant Ohmic Contacts on Si-doped Ga_2O_3 Films by Pulsed Laser Annealing” at the 7th International Conference on Emerging Electronics
- Presented research titled “Non-Thermal Alloyed Ohmic Contact Process on Si Doped $\beta\text{-Ga}_2\text{O}_3$ Grown by Pulsed Laser Deposition Technique” at the MRS Fall Meeting & Exhibit
- Presented research titled “Growth of $\epsilon\text{-(In}_x\text{Ga}_{1-x})_2\text{O}_3$ on AlN via Pulsed Laser Deposition” at the 11th IEEE International Women in Engineering Conference on Electrical and Computer Engineering
- Presented research titled “Numerical Analysis of the Phonon Density of States of Ga_2O_3 /Diamond Heterostructures” at the INBRE Conference
- Received The Graduate College Scholarship
- Received the Student Government Scholarship

Portia Agyemang

- Presented research titled “A Systematic Review on PFAS-Induced Epigenetic Age Acceleration as a Potential Pathway to Cancer in Older Firefighters” at the DOE-EM Symposium, Texas State University
- Received the Graduate College Scholarship
- Received the Student Government Scholarship
- Received Research Development Scholarship
- Received DOE Scholarship

Pratik Uday Karkhanis

- Presented research titled “Rare-Earth-Free Magnets via Magnetic Field-Assisted Additive Manufacturing (MFAAM)”
- Received the TechConnect Innovation Pitch (Critical Technology Spotlight) Finalist Award
- Achieved 5th place in the Bobcat Innovation Challenge Pitch Competition
- Received Bobcat Innovation Accelerator Program (BIAP) Award Entrepreneur lead
- Received Bobcat Catalyst Proof of Concept (POC) Award Entrepreneur lead

Precious Aduwenye

- Presented research titled “A cost-effective and sustainable UHPC for bridge applications” at the ACI Spring 2026

Pritu Parna Sarkar

- Received the Graduate Merit Fellowship

Pukar Sedai

- Presented research titled “Robust Pauli-Limit Violation and 2D-3D Superconducting Crossover in $\text{Nb}_x\text{Re}_{1-x}$ thin films” at the Texas State University STEM Conference
- Received the Student Government Scholarship
- Received The Graduate College Scholarship

Rahul Sheley

- Conference paper titled “Low-CTE functional nanocomposites for high-precision stereolithography” in the Proceedings of the SAMPE Conference
- Presented research titled “Hybrid Ceramic-Polymer Nanocomposites for Dimensionally Stable SLA Printing” at the TechConnect World Innovation Conference & Expo
- Presented research titled “Low-CTE functional nanocomposites for high-precision stereolithography” at the SAMPE Conference
- Received the TXST Society of Plastics Engineers Chapter Award
- Finalist at the SAMPE University Research Symposium, Ph.D. Category
- Received the TechConnect World Best Student Abstract Award, Honorable Mention
- Received BIAP Phase I award

Student Achievements

Rajendra Rai

- Presented research titled “Improving the Electrical Property of Pt-Nanowires Deposited by Focused Electron Beam Induced Deposition Using Annealing” at the RAMI - Next Generation Microelectronics and Interface Engineering for Integration Workshop

Rajesh Chakraborty

- Presented research titled “Behavior of Continuously Reinforced Concrete Pavement under Environmental Loadings” at the CECN
- Presented research titled “Mechanistic Optimization of Two-Mat Reinforcement Design in 14- and 15-in CRCP” at the CECN
- Received the ASHE CTX Scholarship
- Received the Spring semester award - 2026, awarded by The Graduate College of Texas State University

Rigoberto Mayorga-Luna

- Presented research titled “Non-Contact Charge Transfer Measurement of DNA Nano-Devices utilizing AFM” at the TECHCONNECT WORLD
- Presented research titled “Charge transfer through individual DNA molecules measured by force-detected single-electron tunneling” at the RAMI
- Presented research titled “Measurement of Charge Transfer in DNA Molecules via Complementary Charge Sensing Techniques” at the MRS Spring Meeting & Exhibit
- Received the Texas State Tuition Grant (TSTG)
- Received the MRSEC Education Directors Conference Travel Award

Rujan Kayastha

- Presented research titled “Ergonomic and musculoskeletal risk patterns among roofers and non-roofers: Evidence from a comparative field study” at the 62nd Annual ASC International Conference
- Presented research titled “Physiological strain in construction workers: A systematic review of heat-workload synergy and the impact of personal protective equipment” at the 62nd Annual ASC International Conference
- Presented research titled “Plantar pressure distribution on different postures by novice roofers: Effects of slope angles across foot zones and machine learning-based classification for the Joint CSCE Construction” at the Specialty & CRC Conference
- Presented research titled “Biomechanical analysis of stability and fall risk in roofers working on sloped surfaces: Investigating the role of base of support, center of pressure, and center of gravity for the Joint” at the CSCE Construction Specialty & CRC Conference
- Received The Graduate College Scholarship
- Received the Student Government Scholarship
- Awarded Bobcatalyst Proof of Concept grant
- Achieved the First Prize & People’s Choice Award at Ignite 3.0, CIE, Texas State University
- Honored for leadership and excellence at SPE International Polyolefins Conference, Houston
- Honored as Student leader by Student Involvement & Engagement
- Nominated for Outstanding Graduate Student Award (Doctoral Level) from MSEC Department for college-level competition at Texas State University

Saif Al Arafin Taqy

- Presented research titled “Development of Novel Interfacial Layer for diamond/AlN Heterojunction” at the EMC conference
- Presented research titled “Low-Resistant Ohmic Contacts on Si-doped Ga₂O₃ Films by Pulsed Laser Annealing” at the ICEE
- Presented research titled “Band alignment of UWBG diamond/AlN heterojunction” at the MRS Fall Meeting & Exhibit
- Presented research titled “Investigating ROS- and Photothermally Responsive Hydrogels for Drug Delivery Applications” at the HEXT workshop

Student Achievements

- Presented research titled “Enhanced Stability and Controlled Drug Release in PEG-Based Hydrogels: Ionic Interaction Strategy Using PEG-Amine and PEDOT Nanoparticles” at the PREM Day
- Received the Society of Plastics Engineers (SPE) Chapter Awards
- Received The Graduate College Scholarship
- Received the Student Government Scholarship
- Achieved 4th place in the Bobcat Innovation Challenge Pitch Competition
- Achieved 3rd place in Boot camp-II (pitch presentation)

Sam Cantrell

- Presented research titled “Oxygen vacancy driven resistive switching in SrTiO₃/Si(001) heterostructures due to an electronic mechanism” at the 31st International Workshop on Oxide Electronics
- Received the TSTG Grant
- Received the Rising S.T.A.R. Grant

Scott Barrett

- Presented research titled “Bisazobenzene Aqueous Batteries” at the MRS Conference
- Presented research titled “Bisazobenzene Aqueous Batteries” at the Texas State University PREM Conference
- Presented research titled “Bisazobenzene Aqueous Batteries” at the International Battery Seminar & Exhibit
- Presented research titled “Silver-Coated Copper Nanowire Purification” at the TSM Conference
- Presented research titled “Bisazobenzene Aqueous Batteries” at the MRSEC-PREM - Annual Meeting & Industry Day

Shilma Mangira

- Presented research titled “Optimization of printed tungsten disulfide (WS₂) thin films for flexible electronics using inkjet technology” at the SPIE Advanced Lithography + Patterning

Shivam Nigam

- Presented research titled “Engineered Gate-Defined Quantum Dots in Two-Dimensional Materials for Scalable Qubit Implementation” at the Texas State University STEM conference

Shreyas Inamdar

- Presented research titled “Additively Manufactured Thin-Film Heater for Continuous-Flow Isothermal Amplification in Microfluidic Systems” at the ASME International Mechanical Engineering Congress & Exposition
- Technical Poster Presentation at the Texas State University STEM Conference
- Received The Graduate Merit Fellowship

Shriyank Somvanshi

- Conference paper titled “ST-GraphNet: A Spatio-Temporal Graph Neural Network for Understanding and Predicting Automated Vehicle Crash Severity” at the ACM SigSpatial Workshop
- Conference paper titled “Unmasking Vehicle Automation–Severity Interactions Through Multimodal Association Rules Mining” at the IEEE International Conference on Data Mining Workshops (ICDMW)
- Conference paper titled “Tabular Data with Class Imbalance: Predicting Electric Vehicle Crash Severity with Pretrained Transformers (TabPFN) and Mamba-Based Models” at the IEEE ICMLA
- Presented research titled “Crash Severity Prediction in AEB-Equipped Vehicles Using Advanced Tabular Deep Learning” at the Transportation Research Board Annual Meeting
- Presented research titled “Advancing Crash Severity Prediction for Young Riders Using Tabular Data Intelligence” at the Transportation Research Board Annual Meeting
- Presented research titled “Applying MambaAttention, TabPFN, and TabTransformers to Classify SAE Automation Levels in Crashes” at the Transportation Research Board Annual Meeting
- Presented research titled “Enhanced Balanced-Generative Adversarial Networks to Predict Pedestrian Injury Types” at the Transportation Research Board Annual Meeting

Student Achievements

- Presented research titled “Attention-Based and State-Space Models for Predicting Electric Vehicle Crash Severity” at the Transportation Research Board Annual Meeting
- Presented research titled “Prompting Without Labels: Zero- and Few-Shot LLM Performance on E-Scooter Crash Prediction Tasks” at the Transportation Research Board Annual Meeting
- Presented research titled “Evaluating the Influence of Intersection Contexts on Urban E-Scooter Crash Severity Using Structural Topic Modeling of Crash Narratives” at the Transportation Research Board Annual Meeting
- Presented research titled “Crash Risk Analysis of Non-Motorists Using Interpretable Tabular Deep Learning” at the Transportation Research Board Annual Meeting
- Presented research titled “Unmasking Vehicle Automation–Severity Interactions Through Multimodal Association Rules Mining” at the Transportation Research Board Annual Meeting
- Received The Graduate College Scholarship
- Received the Student Government Scholarship
- Received the Outstanding Student Award - ITE Texas District (TexITE),

Shuvo Brahma

- Presented research titled “Vapor Phase Deposition of Electroactive Polymers onto Electrospun Commodity Polymer Nanofibers” at the MRS Conference
- Presented research titled “Vapor Phase Deposition of Electroactive Polymers onto Electrospun Commodity Polymer Nanofibers” at the Biomaterial Conference
- Presented research titled “Vapor Phase Deposition of Electroactive Polymers onto Electrospun Commodity Polymer Nanofibers” at the Texas State University STEM Conference
- Presented research titled “Vapor Phase Deposition of Electroactive Polymers onto Electrospun Commodity Polymer Nanofibers” at Texas State University STEM Conference
- Presented research titled “Vapor Phase Deposition of Electroactive Polymers onto Electrospun Commodity Polymer Nanofibers” at the Microscopy Conference
- Presented research titled “Vapor Phase Deposition of Electroactive Polymers onto Electrospun Commodity Polymer Nanofibers” at the UT MRSEC Annual Meeting/Industry Day
- Presented research titled “Vapor Phase Deposition of Electroactive Polymers onto Electrospun Commodity Polymer Nanofibers” at the SPE International Polyolefin Conference
- Presented research titled “Vapor Phase Deposition of Electroactive Polymers onto Electrospun Commodity Polymer Nanofibers” at the Biomaterial Conference
- Presented research titled “Vapor Phase Deposition of Electroactive Polymers onto Electrospun Commodity Polymer Nanofibers” at the UT MRSEC Annual Meeting/Industry Day
- Received the Society of Plastic Engineers (SPE) Chapter awards
- Received the Best presenter and best overall Poster award, PREM CIMA
- Received the SPE poster award at Polyolefin Conference - obtained the third position
- Finalist at 3MT, TXST

Sujan Acharya

- Presented research titled “Physiological strain in construction workers: A systematic review of heat-workload synergy and the impact of personal protective equipment” at the 62nd ASC International Conference
- Presented research titled “Slope and posture dependent redistribution of plantar pressure during simulated roofing tasks: A linear mixed-effects analysis” at the 62nd ASC International Conference
- Represented TXST in the National NAHB Student Production Home Builder Competition

Susannah Sherwood

- Presented research titled “Formulation and optimization of a novel aerosol jet printing method to manufacture PVDF-HFP films” at the Graduate Student Research Conference, Texas State University

Sushmit Sharma Bhattarai

- Presented research titled “Construction Management Alumni Assessment of Digital Technology Importance, Impact, and Enablers” at the 62nd Annual ASC International Conference

Student Achievements

- Presented research titled “What Works Now in AEC in the Post-ChatGPT Era: A Phase Aligned Evidence Map of AI Startup Value” at the 62nd Annual ASC International Conference
- Presented research titled “Evaluating TxDOT’s Pavement Asset Management Maturity using ISO 55000, GFMAM, and FHWA Criteria” at the 62nd Annual ASC International Conference
- Presented research titled “Artificial Intelligence and Fraudulent Practice in AEC: A Scoping Review of Cross-Sector Lessons and Opportunities” at the ASCE CI and CRC Joint Conference
- Received the Graduate College Scholarship

Tanzila Kamal Choity

- Presented research titled “Overexpression of tRNA-derived small RNAs Enhances Resistance in Plants” at the Graduate Research Student Conference, Texas State University
- Presented research titled “Overexpression of tRNA-derived small RNAs Enhances Resistance in Plants” at the American Association of Plant Biologists
- Received the HENRY NORRIS Scholarship
- Received P.EO IPS Scholarship

Tarek Aziz

- Presented research titled “Synthetic Models of the Methyl-coenzyme M Reductase Active Site” at the Graduate Student Research Conference, Texas State University

Usama Khan

- Presented research titled “A Cross-Sector Framework for Human Factor Technologies: Comparative Analysis of Vertical and Horizontal Construction” at the Human Factors in Design, Engineering, and Computing (AHFE) International Conference
- Presented research titled “Bridging materials science and human factors for construction worker health and safety: An integrated framework” at the International Symposium on Automation and Robotics in Construction

Zachary Naymik

- Presented research titled “Effects of Metal Substitution on Structure, Activity, and Stability of Ruthenium Pyrochlore Oxygen Evolution Electrocatalysts” at the 248th Electrochemical Society Conference

Zubair Ahmed

- Presented research titled “Analysis of frequency response of completely aerosol-jet-printed CNTFET as a switch” at the SPIE Photonics West

Sakib H Bhuiyan

- Presented research titled “Development of Stable Photothermal Hydrogels by Utilizing PEDOT Nanoparticles for Controlled Drug Delivery” at the MRS Spring Meeting
- Presented research titled “Enhanced Stability and Controlled Drug Release in PEG-Based Hydrogels: Ionic Interaction Strategy Using PEG-Amine and PEDOT Nanoparticles” at Biomaterials Day at Rice University
- Presented research titled “Enhanced Stability and Controlled Drug Release in PEG-Based Hydrogels: Ionic Interaction Strategy Using PEG-Amine and PEDOT Nanoparticles” at CAMPS conference
- Presented research titled “Enhanced Stability and Controlled Drug Release in PEG-Based Hydrogels: Ionic Interaction Strategy Using PEG-Amine and PEDOT Nanoparticles” at PREM day
- Presented research titled “Investigating ROS- and Photothermally Responsive Hydrogels for Drug Delivery Applications” at HEXT workshop
- Received Society of Plastics Engineers (SPE) Chapter Award
- Received Graduate College Scholarship
- Received Student Government Scholarship
- Secured 4th place in the Bobcat Innovation Challenge
- Secured 3rd place in Boot camp-II

MSEC Student Publications

- Subedi, A.**, Jeong, K.-D., Lee, M.-S., & Lee, S.-J. (2025). Effectiveness of diamond grinding in enhancing rigid pavement performance: A review of key metrics. *Applied Sciences*, 15, 8980. <https://doi.org/10.3390/app15168980>
- Salsabiyl, A.**, & Espinoza, W. F. (2026). Effects of PCM and glass on the physicochemical properties and thermal regulation of cement mortar. *Journal of Building Engineering*, 125, 116082. <https://doi.org/10.1016/j.jobbe.2026.116082>
- Ashaduzzaman, M., Al Muhit, M. A., Dey, S. C., Rahaman, M. M., Mahmudul Hasan, H. N., Mustary, N., Hossain, M. K., & **Das, M. K.** (2025). Microwave assisted starch stabilized green synthesis of zinc oxide nanoparticles for antibacterial and photocatalytic applications. *Scientific Reports*, 15, 28288. <https://doi.org/10.1038/s41598-025-14193-8>
- Babatunde, E.**, Gurav, R., & Hwang, S. (2026). Biochar derived from giant reed and water lettuce for adsorptive and oxidative remediation of crystal violet dye in water. *Water Practice and Technology*, 21, 969–988. <https://doi.org/10.2166/wpt.2026.216>
- Ahmed, F.**, & Jacobs, M. I. (2025). Using induced charge detection to quantify the net charge of microdroplets within a quadrupole electrodynamic trap. *Review of Scientific Instruments*, 96, 125206. <https://doi.org/10.1063/5.0294542>
- Gholami Hossein Abadi, G.**, **Adewale, K.**, Salim, M. U., & Moro, C. (2026). Enhancing concrete strength prediction from non-destructive testing under variable curing temperatures using artificial neural networks. *Infrastructures*, 11, 46. <https://doi.org/10.3390/infrastructures11020046>
- Myhre, M. W., **Das, M. K.**, Williams, E. P., David, W. M., & Kerwin, S. M. (2025). From triads to tools: A comprehensive review of the expanding roles of G-triplex structures. *Molecules*, 30, 4303. <https://doi.org/10.3390/molecules30214303>
- Mahamudujjaman, M.**, Pyakurel, S., & Geerts, W. J. (2025). Stability investigations of triple halide perovskite: A detailed study using angle-resolved XPS. *MRS Advances*, 10, 2236–2244. <https://doi.org/10.1557/s43580-025-01381-x>
- Uddin, M. N.**, Mostazid, M. I., Faysal, M. A. M., & Shi, X. (2025). Developing a novel strength predictive modeling for 3D printable geopolymers concrete: An interpretable data-driven approach. *Structures*, 82, 110405. <https://doi.org/10.1016/j.istruc.2025.110405>
- Uddin, M. N.**, Sajib, M. H., Arif, A., Ye, J., Majumder, A., & Shi, X. (2026). From mix to structure: A critical review of 3D printed fiber reinforced concrete (3DP-FRC). *Journal of Building Engineering*, 120, 115360. <https://doi.org/10.1016/j.jobbe.2026.115360>
- Haque, M. A., Rahat, J. U., Dey, S., **Uddin, M. N.**, & Arifuzzaman, M. (2025). Durability and hydrophobic performance of PLC concrete with crystalline and water-reducing admixture under extreme curing conditions. *Materials Today Communications*, 49, 114041. <https://doi.org/10.1016/j.mtcomm.2025.114041>
- Hasan, M. M., Xu, J., & **Uddin, M. N.** (2026). A critical review of 3D printed fiber-based geopolymers concrete (3DP-FGC): Fresh properties, mechanical performance, and current limitations. *Journal of Building Pathology and Rehabilitation*, 11, 60. <https://doi.org/10.1007/s41024-025-00737-y>
- Hasan, M. M., Xu, J., **Uddin, M. N.**, Yang, J., & Tonny, N. J. (2025). An interpretable machine learning approach to predict the compressive strength of fly ash-based geopolymers concrete. *Innovative Infrastructure Solutions*, 10, 500. <https://doi.org/10.1007/s41062-025-02307-0>
- Karmakar, S., Kumar, G. A., Angajala, K. K., Mistari, C. D., Amrutha, M., **Sarkar, P. K.**, **Taqy, S.**, Chakraborty, B., More, M. A., & **Haque, A.** (2026). Fertile field emission response in scrambled SmNiO₃ nanopins. *Scientific Reports*, 16, 16953. <https://doi.org/10.1038/s41598-026-37508-9>

MSEC Student Publications

Agyemang, P., Agya, B. A., & Anokye, K. (2026). *Satellite remote sensing for hydrological intelligence and climate-resilient water governance in the Gulf Cooperation Council*. *Environmental Sustainability Indicators*, 30, 101256. <https://doi.org/10.1016/j.indic.2026.101256>

Chong, B. W., Gujar, P., Shi, X., & Suraneni, P. (2026). *Valorization of waste eggshell as a limestone alternative for high-volume incorporation into Portland cement*. *Journal of Materials in Civil Engineering*, 38, 04025617. <https://doi.org/10.1061/JMCEE7.MTENG-21776>

Arigbabowo, O. K., Tate, J. S., Khadka, M., Geerts, W. J., & **Karkhanis, P. U.** (2025). *Review on mechanical, thermal, and magnetic performance of high-temperature thermoplastic bonded magnetic composites*. *Journal of Magnetism and Magnetic Materials*, 630, 173394. <https://doi.org/10.1016/j.jmmm.2025.173394>

Sedai, P., Sapkota, A., Avery, A., Perez, K. I., Klaes, R. M., Loloe, R., & Satchell, N. (2026). *Optimization of polycrystalline sputtered niobium thin films: The role of substrate and growth pressure*. *Thin Solid Films*, 834, 140855. <https://doi.org/10.1016/j.tsf.2026.140855>

Sheley, R. R., Ghosh, S., Rai, P., Brown, D. J., Cervantes, S., Sufian, M., & Tate, J. (2026). *Low-CTE functional nanocomposites for high-precision stereolithography*. *Proceedings of the SAMPE Conference, Seattle, WA, United States*. <https://doi.org/10.33599/nasampe/s.24.0229>

Rai, R., Dhakal, U., D C, B., & Miyahara, Y. (2026). *Improving the electrical conductivity of Pt nanowires deposited by focused electron beam induced deposition using thermal annealing*. *Nanotechnology*, 37, 095301. <https://doi.org/10.1088/1361-6528/ae4b45>

Alalade, S., **Chakraborty, R.**, Bae, S.-W., Yeon, J. H., & Won, M. (2025). *Preliminary mechanistic optimization of two-mat reinforcement design in continuously reinforced concrete pavement*. *Infrastructures*, 10, 334. <https://doi.org/10.3390/infrastructures10120334>

Mahmud, T., Kayastha, R., Kisi, K., Ngu, A. H., & Alamgeer, S. (2025). *Evaluating the effectiveness of plantar pressure sensors for fall detection in sloped surfaces*. *Electronics*, 14, 3003. <https://doi.org/10.3390/electronics14153003>

Acharya, S., Kisi, K., Gautam, S. R., **Mahmud, T.**, & Kayastha, R. (2025). *A high-performance hybrid transformer-LSTM-XGBoost model for sEMG-based fatigue detection in simulated roofing postures*. *Buildings*, 15, 3005. <https://doi.org/10.3390/buildings15173005>

Viana, L. A. F. C., Martins, N. R., **Taqy, S.**, Haque, A., Scolfaro, L., & Borges, P. D. (2026). *Structural and electronic properties of Q-carbon/AlN heterostructures*. *Surface Interfaces*, 84, 108591. <https://doi.org/10.1016/j.surfin.2026.108591>

Ustaoglu, A., **Menbari, S.**, Gencel, O., Aydogmus, E., Sari, A., Yesilata, B., Ozbakkaloglu, T., & Uzun, O. (2025). *Development and characterization of coconut oil-based phase change material integrated flexible polyurethane biocomposites for thermal energy storage applications*. *Solar Energy Materials and Solar Cells*, 293, 113875. <https://doi.org/10.1016/j.solmat.2025.113875>

Brittain, W., **Barrett, S.**, Mouer, L., & Saucedo, N. (2025). *A transient phenolate enables relaxation of Z-tetra-ortho-fluoroazobenzene to the stable state in seconds*. *Angewandte Chemie International Edition*, 64, e202513719. <https://doi.org/10.1002/anie.202513719>

MSEC Student Publications

Mangira, S., Ahmed, Z., Haque, A., & Chen, Y. M. (2026). Optimization of printed tungsten disulfide (WS₂) thin films for flexible electronics using inkjet technology. In R. A. Farrell & R. Ruiz (Eds.), *Novel Patterning Technologies 2026*. SPIE. <https://doi.org/10.1117/12.3093887>

Ahmed, Z., Mangira, S., Stephan, K., & Chen, Y. M. (2026). Analysis of frequency response of completely aerosol jet printed CNTFET as a switch. In L. P. Sadwick & T. Yang (Eds.), *Terahertz, RF, Millimeter, and Submillimeter-Wave Technology and Applications XIX*. SPIE. <https://doi.org/10.1117/12.3088422>

Inamdar, S., Sargordi, A., **Choity, T. K.,** Emami, A., Kim, J. Y., Kang, H.-G., & Kim, N. (2026). Additively manufactured electrothermal thin-film heaters for on-chip isothermal DNA amplification. *Sensors and Actuators A: Physical*, 399, 117434. <https://doi.org/10.1016/j.sna.2025.117434>.

Pollock, S. B. B., Das, S., **Somvanshi, S.,** Islam, M. M., & Sheykhfard, A. (2026). Who leaves, when, and how? Dissecting evacuation choices from a survey of at-risk residents in the Western U.S. *Cities*, 174, 107038. <https://doi.org/10.1016/j.cities.2026.107038>

Somvanshi, S., Antariksa, G., Das, S., Liu, J., & Hossain, A. (2026). Image-based crash severity analysis: Transforming tabular data using convolutional neural networks. *IEEE Access*, 14, 33665-33683. <https://doi.org/10.1109/ACCESS.2026.3667075>

Somvanshi, S., Das, S., Islam, M. M., Pollock, S. B. B., Chhetri, G., & Anderson, D. (2026). Quantum computing in transportation engineering: A survey. *IEEE Transactions on Intelligent Transportation Systems*, 27, 7332-7349. <https://doi.org/10.1109/TITS.2026.3662626>

Somvanshi, S., Das, S., Javed, S., Antariksa, G., & Hossain, A. (2026). A survey on tabular data: From tree-based methods to tabular deep learning. *ACM Computing Surveys*. <https://doi.org/10.1145/3807777>

Somvanshi, S., Islam, M. M., Chhetri, G., **Chakraborty, R.,** Mimi, M. S., Shuvo, S. A., Islam, K. S., Javed, S., Rafat, S. A., Dutta, A., & Das, S. (2026). From tiny machine learning to tiny deep learning: A survey. *ACM Computing Surveys*, 58, 1-33. <https://doi.org/10.1145/3776588>

Somvanshi, S., Islam, M. M., Rafe, A., Tusti, A. G., Chakraborty, A., Baitullah, A., Chowdhury, T. I., Alnawmasi, N., Dutta, A., & Das, S. (2026). Bridging the black box: A survey on mechanistic interpretability in AI. *ACM Computing Surveys*, 58, 1-35. <https://doi.org/10.1145/3787104>

Somvanshi, S., Javed, S. A., Islam, M. M., Pandit, D., & Das, S. (2026). A survey on Kolmogorov-Arnold network. *ACM Computing Surveys*, 58, 1-35. <https://doi.org/10.1145/3743128>

Kollias, P., Cottier, R., **Miracle, J., Cantrell, S.,** & Theodoropoulou, N. (2025). Oxygen vacancy driven resistive switching in SrTiO₃/Si(001) heterostructures due to an electronic mechanism. *Journal of Applied Physics*, 137, 244502. <https://doi.org/10.1063/5.0268554>

Menbari, S., Sheley, R. R., Tate, J. S., & Ozbakkaloglu, T. (2026). Dynamic behavior of micro-nanostructured epoxy resin blends and nanocomposites. In *Micro- and nanostructured epoxy thermosetting polymer blends and their nanocomposites* (pp. 179-206). Elsevier. <https://doi.org/10.1016/B978-0-443-21679-4.00002-6>

MSEC Student Publications

Somvanshi, S., Liu, J., **Chakraborty, R.**, Tamakloe, R., & Das, S. (2026). Predicting crash severity using naturalistic driving data and neural networks. *International Journal of Intelligent Transportation Systems Research*. <https://doi.org/10.1007/s13177-025-00624-3>

Liu, J., **Chakraborty, R.**, **Somvanshi, S.**, & Das, S. (2025). Impact of operating speed, roadway curvature, and precipitation on roadway departure risk in rural two-lane roads. *Travel Behaviour and Society*, 41, 101055. <https://doi.org/10.1016/j.tbs.2025.101055>

Pujara, D. S., **Choity, T. K.**, Bordiya, Y., Magdaleno, S. M., & Kang, H.-G. (2026). Detection of tRNA-derived small RNAs in *Arabidopsis thaliana* via northern blotting: Exploring potential biomarkers for phytohormone analysis. In S. Mukhtar (Ed.), *Plant hormones* (pp. 209-219). Springer. https://doi.org/10.1007/978-1-0716-5214-5_15

Shadman, W., Mannan, M., **Choity, T. K.**, Hwang, S., Lee, G.-H., Kang, H.-G., & Kim, N. (2026). Electrochemical detection of tRNA-derived fragment (tRF) biomarkers using a multi-functionalized carbon electrode. *Surface Interfaces*, 83, 108446. <https://doi.org/10.1016/j.surfin.2026.108446>

Gujar, P., **Chong, B. W.**, **Aduwenye, P.**, Shi, X., & Grasley, Z. C. (2025). Hybrid steel fiber-reinforced concrete for pavement overlays. *ACI Materials Journal*. <https://doi.org/10.14359/51747871>

Khanal, B., Mock, S. K., Bag, N., Hasan, M. M., **Austin-Bingamon, N. L.**, Miyahara, Y., & Satchell, N. (2026). Magnetism in Pt/Co/Cu multilayers: Dependence on Co thickness and the influence of additional superconducting Nb layers. *Materials Research Express*, 13, 026101. <https://doi.org/10.1088/2053-1591/ae3890>

Gholami Hossein Abadi, G., Okechi, I. K., Aguayo, F., Torres, A., Nitesh, K. J. N. S., Mankar, A., **Argha, D. B. P.**, Chavez Rivera, J., Shi, X., Espinoza Chavez, W., & Moro, C. (2026). Reducing carbon footprint through binder content optimization in durable performance-based concrete overlays. *Materials and Structures*, 59, 150. <https://doi.org/10.1617/s11527-026-03050-3>

Miracle, J., Nichols, A., **Cantrell, S.**, Myers, T., & Theodoropoulou, N. (2026). Epitaxial growth and structural characterization of PbTe thin films on CdTe(211)B: Evidence of a 180° twisted interface. *Crystal Growth & Design*, 26, 3267–3275. <https://doi.org/10.1021/acs.cgd.5c01542>

Begum, M., **Toma, F.**, Rashid, M.B., Habib, M.A., Ullah, S.M., Khan, R., Hossain, S.M., Mostafa Al-Mamun, S. M. (2025). Integrated mineralogical and microstructural analysis of gas field samples in Bangladesh: Optimizing extraction strategies for Salda and Shahbazpur reservoirs. *Journal of Trace Elements and Minerals*. <https://doi.org/10.1016/j.jtemin.2025.100268>

MSEC Students Advancing to Candidacy



Precious Aduwenye

Advised by
Dr. Xijun Shi



Anisul Islam

Advised by
Dr. Wilhelmus Geerts



Leobardo Rodriguez

Advised by
Dr. Wilhelmus Geerts



Gauri Mahajan

Advised by
Dr. Feng Wang



Md Mahamudujjaman

Advised by
Dr. Wilhelmus Geerts and Dr. Hua
Zhu



Zubair Ahmed

Advised by
Dr. Yihong Chen



Mauricio Jemal

Advised by
Dr. Sean Kerwin



Zachary Naymik

Advised by
Dr. Christopher Rhodes



Rahul Sheley

Advised by
Dr. Jitendra Tate



Shuvo Brahma

Advised by
Dr. Tania Betancourt

MSEC Graduates ! Congratulations!

Fall 25'



Farah Najdawi

Advised by
Dr. Tongdan Jin



Ayush Subedi

Advised by
Dr. Anthony Torres



Junaid Rehman

Advised by
Dr. Tania Betancourt
and Dr. Jennifer Irvin

Spring 26'

Summer 26'



Debo Argha

Advised by
Dr. Anthony Torres
and Dr. Federico Aguayo



Scott Barrett

Advised by
Dr. William Brittain



Beng Wei Chong

Advised by
Dr. Xijun Shi



**Ghazal Gholami
Hossein Abadi**

Dr. Carlos Moro Martinez and
Dr. Anthony Torres



**Sushmit Sharma
Bhattarai**

Advised by
Dr. Hyunhwan Kim



Rujan Kayastha

Advised by
Dr. Krishna Kisi and Dr.
Jitendra Tate



Shriyank Somvanshi

Advised by
Dr. Subasish Das



MSEC Alumni Spotlight

Dr. Eric Welch



Dr. Welch graduated from the MSEC program in December of 2019 working in the group of the late Dr. Alex Zakhidov. Their dissertation on first principles modeling of hybrid halide perovskites for optoelectronic applications won the dissertation of the year award for math and science that year. They then did postdoctoral work with Shane Yost developing the QChem software package and with Luisa Scolfaro doing material modeling of semiconductors for high power electronic applications. Dr. Welch was then hired at Prairie View A&M University as an assistant professor in the department of physics, running a small computational physics lab that modeling wide band gap oxides and perovskites for numerous optoelectronic applications. Dr. Welch now teaches as an adjunct at Wright State University in Dayton, OH after his wife obtained her PhD from Texas A&M University in 2025 and was hired at a dream job as a civilian contractor at the Air Force Research Lab, moving them to OH in late 2025.

Dr. Welch's Dissertation: First principles modeling of hybrid halide perovskites for optoelectronic applications

Dr. Tanjina Ahmed



Dr. Ahmed graduated from the MSEC Program in Spring of 2023 with her dissertation on Magnetic and Morphological Characterization of SrFe₁₂O₁₉/PA12 composite: Hard Magnetic Filament for Magnetic Field Assisted Additive Manufacturing (MFAAM). She joined Intel Corporation, NM in April 2023 as a Process Development Engineer. She is currently working as a Module Development Engineer with a group under the Silicon Photonics (SiP) department at Intel Corporation, Albuquerque, NM. In her position, she helps develop new semiconductor processing techniques to make photonics devices and lead multiple pathfinding projects utilizing her Physics and Materials Science and Engineering knowledge. Prior to joining Intel, she worked as a doctoral research/teaching assistant from 2018 to 2023 for the MSEC program under the supervision of Dr. Wilhelmus J. Geerts and

Dr. Alexander Zakhidov. During her Ph.D. in the MSEC Program she gained valuable hands-on experience in the fabrication and characterization of novel magnetic and optoelectronics materials with applications in advanced technologies. These experiences on different metrology tools and analysis skills in the MSEC program allowed her to contribute to the cutting edge of the semiconductor industry.

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