



This edition highlights Scopus-indexed publications and ORSP grant awards from the UTEP Engineering research community for the months of November and December in 2023. Each publication is accompanied by a DOI link for easy access to the article. Our goal is to keep faculty, post-doctoral researchers, and doctoral students informed about the latest research developments within the College. We also include essential grant deadlines and research workshops in the Newsfeed.

ANNOUNCEMENTS

FACULTY OPPORTUNITIES

Defense Advanced Research Project Agency (DARPA) Young Faculty Award

The Defense Advanced Research Project Agency (DARPA) Young Faculty Award (YFA) for 2024 is available. This program aims to identify and engage rising stars in junior research positions in academia, particularly those without prior DARPA funding, to expose them to DoD needs and DARPA's mission to create and prevent technological surprise.

Further information about this opportunity can be found in the following webpage: <https://www.darpa.mil/news-events/2023-11-08>

Department of Homeland Security Summer Research Team MSI's

DHS Summer Research Team for Minority Serving Institutions (MSI's) is now accepting applications from faculty interested in participating in a summer research team experience.

Further information can be found in the following webpage: <https://zintellect.com/Opportunity/Details/DHS-SRTMSI-2024-FacultyApp>

STUDENT OPPORTUNITIES

The University of Michigan will host several undergraduate research experiences for the summer of 2024. This is a special opportunity to conduct next-gen research on 2D materials, energy storage, semiconductors, and sustainable polymers with world-class faculty.

Program Dates: May 28 to August 2, 2024

- Benefits: \$6,000 stipend, housing in university residences, professional development, and social activities.
- Application Portal: <https://reu.engin.umich.edu>
- Application Deadline: February 5, 2024 for full consideration.

The National Security Innovation Network (NSIN) is now accepting applications for the 2024 X-Force Fellowship!

X-Force is a summer internship program that provides undergraduate students, graduate students and recent graduates a chance to serve their country by working on real-world national security problems in collaboration with the U.S. Department of Defense (DoD).

Fellowship Details:

- Full-time, paid opportunity
- Open to US Citizens
- Primarily in-person opportunities to work with a DoD organization
- Problem Areas: Technical (STEM), Strategic (Policy) and Research
- For more information and to apply check out: <https://www.nsin.mil/x-force/>
- Application Deadline: January 31, 2024

PUBLICATIONS

Doctoral Student Publications

Zachary Chanoi (Advisor Evgeny Shafirovich)

Local composition control using an active-mixing hotend in fused filament fabrication

Additive Manufacturing Letters

<https://doi.org/10.1016/j.addlet.2023.100177>

Toward a tunable fabrication of multifunctional iron-aluminum spinels via solution combustion synthesis: The effects of fuel, heating mode, and Fe:Al precursor ratio

Ceramics International

<https://doi.org/10.1016/j.ceramint.2023.09.242>

Guillermo Beckmann (Advisor Roger Gonzalez)

Optimization of a Cost-Constrained, Hydraulic Knee Prosthesis Using a Kinematic Analysis Model

Biomechanics

<https://doi.org/10.3390/biomechanics3040040>

MD Sahid Hassan (Advisor Yirong Lin)

3D Printed Integrated Sensors: From Fabrication to Applications—A Review

nanomaterials

<https://doi.org/10.3390/nano13243148>

Saqlain Zaman (Advisor Yirong Lin)

3D Printed Integrated Sensors: From Fabrication to Applications—A Review

nanomaterials

<https://doi.org/10.3390/nano13243148>

Joshua Dantzer (Advisor Yirong Lin)

3D Printed Integrated Sensors: From Fabrication to Applications—A Review
nanomaterials

<https://doi.org/10.3390/nano13243148>

Diana Leyva (Advisor Jack Chessa)

3D Printed Integrated Sensors: From Fabrication to Applications—A Review
nanomaterials

<https://doi.org/10.3390/nano13243148>

MD Shahjahan Mahmud (Advisor Yirong Lin)

3D Printed Integrated Sensors: From Fabrication to Applications—A Review
nanomaterials

<https://doi.org/10.3390/nano13243148>

Sofia Gomez (Advisor Yirong Lin)

3D Printed Integrated Sensors: From Fabrication to Applications—A Review
nanomaterials

<https://doi.org/10.3390/nano13243148>

Ahnaf Farhan (Advisor Mahmud Hossain)

Temporal word embedding with predictive capability
Knowledge and Information Systems

<https://doi.org/10.1007/s10115-023-01920-8>

Luis Martinez Milian (Advisor Srinivasa Singamaneni Rao)

Magnetic properties of intercalated quasi-2D Fe₃-xGeTe₂ van der Waals magnet
NPJ | 2D materials applications

<https://doi.org/10.1038/s41699-023-00417-w>

Isaac Zuniga (Advisor Soheil Nazarian)

Impact of Fines on Various Base Material Properties
Transportation Research Record: Journal of the Transportation Research Board

<https://doi.org/10.1177/03611981231166389>

Master's Student Publications

Laura Martinez-Espinoza (in collaboration with Zachary Chanoi et.al.)

Toward a tunable fabrication of multifunctional iron-aluminum spinels via solution combustion synthesis: The effects of fuel, heating mode, and Fe:Al precursor ratio

Ceramics International

<https://doi.org/10.1016/j.ceramint.2023.09.242>

Sebastian Morales (in collaboration with Isaac Zuniga)

Impact of Fines on Various Base Material Properties
Transportation Research Record: Journal of the Transportation Research Board

<https://doi.org/10.1177/03611981231166389>

Undergraduate Student Publications

Ian Rybak (in collaboration with Joshua Green et.al.)

Local composition control using an active-mixing hotend in fused filament fabrication

Additive Manufacturing Letters

<https://doi.org/10.1016/j.addlet.2023.100177>

Mauricio Lopez (in collaboration with Joshua Green et.al.)

Local composition control using an active-mixing hotend in fused filament fabrication

Additive Manufacturing Letters

<https://doi.org/10.1016/j.addlet.2023.100177>

Victoria Reyes (in collaboration with Zachary Chanoi et.al.)

Toward a tunable fabrication of multifunctional iron-aluminum spinels via solution combustion synthesis: The effects of fuel, heating mode, and Fe:Al precursor ratio

Ceramics International

<https://doi.org/10.1016/j.ceramint.2023.09.242>

Ethan Ramos (Alumni, in collaboration with Lucas Galey et.al.)

Optimization of a Cost-Constrained, Hydraulic Knee Prosthesis Using a Kinematic Analysis Model

Biomechanics

<https://doi.org/10.3390/biomechanics3040040>

Doctoral Alumni Publications (in Collaboration with UTEP Engineering Faculty)

Jonathan Slager (Advisor Roger Gonzalez)

Local composition control using an active-mixing hotend in fused filament fabrication

Additive Manufacturing Letters

<https://doi.org/10.1016/j.addlet.2023.100177>

Jean Montes Ramirez (Advisor Yirong Lin)

3D Printed Integrated Sensors: From Fabrication to Applications—A Review

nanomaterials

<https://doi.org/10.3390/nano13243148>

Roberto Camacho Barranco (Advisor Mahmud Hossain)

Temporal word embedding with predictive capability

Knowledge and Information Systems

<https://doi.org/10.1007/s10115-023-01920-8>

Faculty Publications

Joshua Green

Local composition control using an active-mixing hotend in fused filament fabrication

Additive Manufacturing Letters

<https://doi.org/10.1016/j.addlet.2023.100177>

Lucas Galey

Optimization of a Cost-Constrained, Hydraulic Knee Prosthesis Using a Kinematic Analysis Model

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Roger Gonzalez

Local composition control using an active-mixing hotend in fused filament fabrication

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Optimization of a Cost-Constrained, Hydraulic Knee Prosthesis Using a Kinematic Analysis Model

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Evgeny Shafirovich

Toward a tunable fabrication of multifunctional iron-aluminum spinels via solution combustion synthesis: The effects of fuel, heating mode, and Fe:Al precursor ratio

Ceramics International

<https://doi.org/10.1016/j.ceramint.2023.09.242>

Yirong Lin

3D Printed Integrated Sensors: From Fabrication to Applications—A Review

nanomaterials

<https://doi.org/10.3390/nano13243148>

Monica Akbar

Temporal word embedding with predictive capability

Knowledge and Information Systems

<https://doi.org/10.1007/s10115-023-01920-8>

Mahmud Hossain

Temporal word embedding with predictive capability

Knowledge and Information Systems

<https://doi.org/10.1007/s10115-023-01920-8>

Eric Smith

Mathematical Modeling of Dynamic Supply Chains Subject to Demand Fluctuations

Engineering, Technology & Applied Science Research

<https://doi.org/10.48084/etasr.6491>

Jaime Sanchez-Leal

Mathematical Modeling of Dynamic Supply Chains Subject to Demand Fluctuations

Engineering, Technology & Applied Science Research

<https://doi.org/10.48084/etasr.6491>

Priyadarshini Pennathur

Unfamiliar personal protective equipment: The role of routine practice and other factors affecting healthcare personnel doffing strategies

Infection Control & Hospital Epidemiology

<https://doi.org/10.1017/ice.2023.50>

Devesh Misra

Role of W in W-coated Cu powder in enhancing the densification-conductivity synergy of laser powder bed fusion built Cu component

Journal of Materials Processing Technology

<https://doi.org/10.1016/j.jmatprotec.2023.118169>

Enhanced mechanical properties of AZ91 magnesium alloy by asynchronously large-strain high-efficiency rolling with bimodal grain structure

Journal of Materials Research and Technology

<https://doi.org/10.1016/j.jmrt.2023.10.205>

Effect of grain boundary engineering on grain boundary character distribution and deformation behavior of a TRIP-assisted high-entropy alloy

Materials Characterization

<https://doi.org/10.1016/j.matchar.2023.113294>

Ductile Ti-Ni Alloys With an Equiaxed Microstructure Designed by Tuning the Precipitation Pathway of Ti₂Ni

Metallurgical and Materials Transactions A

<https://doi.org/10.1007/s11661-023-07179-6>

Binata Joddar

Unraveling the Cooperative Activity of Hydrophilicity, Conductivity, and Interfacial Active Sites in Alginate-CNT-Cuo Self-Standing Electrodes with Benchmark-Close Activity for Alkaline Water Splitting

Advanced Sustainable Systems

<https://doi.org/10.1002/adsu.202300283>

Davi Rodrigues

Quadrature and Single-Channel Low-Cost Monostatic Radar Based on a Novel 2-Port Transceiver Chain

IEEE Sensors Journal

<https://doi.org/10.1109/JSEN.2023.3324882>

Jaeyoung Cho

Correction: Effect of chlorhexidine Mouthrinse on prevention of microbial contamination during EBUS-TBNA: a randomized controlled trial

BMC Cancer

<https://doi.org/10.1186/s12885-023-10505-1>

C. V. Ramana

Surface engineering of mesoporous-TiO₂ electron transport layer for improved performance of organic-inorganic perovskite solar cells via suppressing interface defects, enhancing charge extraction and boosting carrier transport

Colloids and Surfaces A: Physicochemical and Engineering Aspects

<https://doi.org/10.1016/j.colsurfa.2023.132075>

Alex Mayer

MAD water: Integrating modular, adaptive, and decentralized approaches for water security in the climate change era

WIREs Water

<https://doi.org/10.1002/wat2.1680>

Paras Mandal

Multi-objective optimization of campus microgrid system considering electric vehicle charging load integrated to power grid

Sustainable Cities and Society

<https://doi.org/10.1016/j.scs.2023.104778>

Armanj D. Hasanyan

A micropolar modelling framework for interfacial free-edge effects of heterogeneous laminates

Composites Part A: Applied Science and Manufacturing

<https://doi.org/10.1016/j.compositesa.2023.107703>

Deepak Tosh

HealthDote: A blockchain-based model for continuous health monitoring using interplanetary file system

Healthcare Analytics

<https://doi.org/10.1016/j.health.2023.100175>

Camila Madeira

Uncovering the impact of agricultural activities and urbanization on rivers from the Piracicaba, Capivari, and Jundiaí basin in São Paulo, Brazil: A survey of pesticides, hormones, pharmaceuticals, industrial chemicals, and PFAS

Chemosphere

<https://doi.org/10.1016/j.chemosphere.2023.139954>

Marcelo Frias

A Study of the Electrum and DynAlloy Dynamic Behavior Notations

IEEE Transactions on Software Engineering

<https://doi.org/10.1109/TSE.2023.3320625>

GRANTS AWARDED

PI Name: Ramana, Chintalapalle V

Proposal Title: Supplement: PREM Center For Energy and Biomaterials (US-India Collaboration)

Award Amount: \$10,001.00

Agency: National Science Foundation (FED)

PI Name: Wicker, Ryan B

CO-PI 1: Medina, Francisco

CO-PI 2: Espalin, David

CO-PI 3: Mireles, Jorge

Proposal Title: Future Verticle Lift: Additive Manufacturing Toward the Advancement Of Rotorcraft Technology

Award Amount: \$7,500,000.00

Agency: Natl Ctr For Defense Manuf and Machining (NPO)

PI Name: Yi, Son-Young

CO-PI 1 Name: Kubicki, James D.

CO-PI 2 Name: Gan, Zhengtao

Proposal Title: Advanced Multi-Physics Machine Learning for Subsurface Energy Systems Across Scales

Award Amount: \$3,805,175.00

Agency: US Department of Energy (FED)

PI Name: Santiago, Ivonne

Proposal Title: Community Outreach and Water Quality Assessment in Colonias of Hueco Tanks

Award Amount: \$20,361.00

Agency: Texas Water Trade (NPO)

PI Name: Velez-Reyes, Miguel

Proposal Title: The Hispanic Alliance for The Graduate Education and the Professoriate (H-AGEP)

Award Amount: \$42,909.00

Agency: National Science Foundation (FED)

PI Name: Wagler, Amy E.

CO-PI Name: Errapotu, Sai M.

Proposal Title: Differently Private Synthetic Data Generation, SDG

Award Amount: \$20,000.00

Agency: Pacific Northwest National Laboratory (FED)

PI Name: Lopes, Amit J.

CO-PI 1 Name: Luna, Sergio A.

CO-PI 2 Name: Tseng, Tzu-liang B.

CO-PI 3 Name: Renteria Marquez, Ivan A.

CO-PI 4 Name: Rahman, Md F.

Proposal Title: A Smart Manufacturing Implementation and Workforce Development Playbook for Underserved Small Medium Manufacturers

Award Amount: \$150,000.00

Agency: US Department of Energy (FED)

PI Name: Lopes, Amit J.

Proposal Title: SRG: TMAC PDN State Funding Application (State Appropriations)

Award Amount: \$650,000.00

Agency: Texas Workforce Commission (TX)

PI Name: Lopes, Amit

Proposal Title: Environmental Management System - Identifying Environmental and Health Hazards

Award Amount: \$82,499.00

Agency: University of Texas at Arlington (TX)

PI Name: Natividad-Diaz, Sylvia L.

CO-PI 1 Name: Joddar, Binata

CO-PI 2 Name: Poon, Wilson

Proposal Title: Human 3D Microfluidic Cardiovascular Tissue Model in Microgravity Conditions for Simulation of Tissue-Specific Response to Environmental Stressors

Award Amount: \$50,000.00

Agency: National Aeronautics and Space Admin (FED)

PI Name: Crites, Stephen L.

CO-PI 1 Name: Dura, Lucia

CO-PI 2 Name: Meissner, Kenith E.

CO-PI 3 Name: Kirken, Robert A.

Proposal Title: Empowering the Next Generation of Highly Skilled STEM Professionals Through Access, Intentionality, and Effectiveness

Award Amount: \$250,000.00

Agency: Alfred P. Sloan Foundation (FNDN)

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