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Georgia Tech College of Engineering
George W. Woodruff School
of Mechanical Engineering

Woodruff Weekly Digest

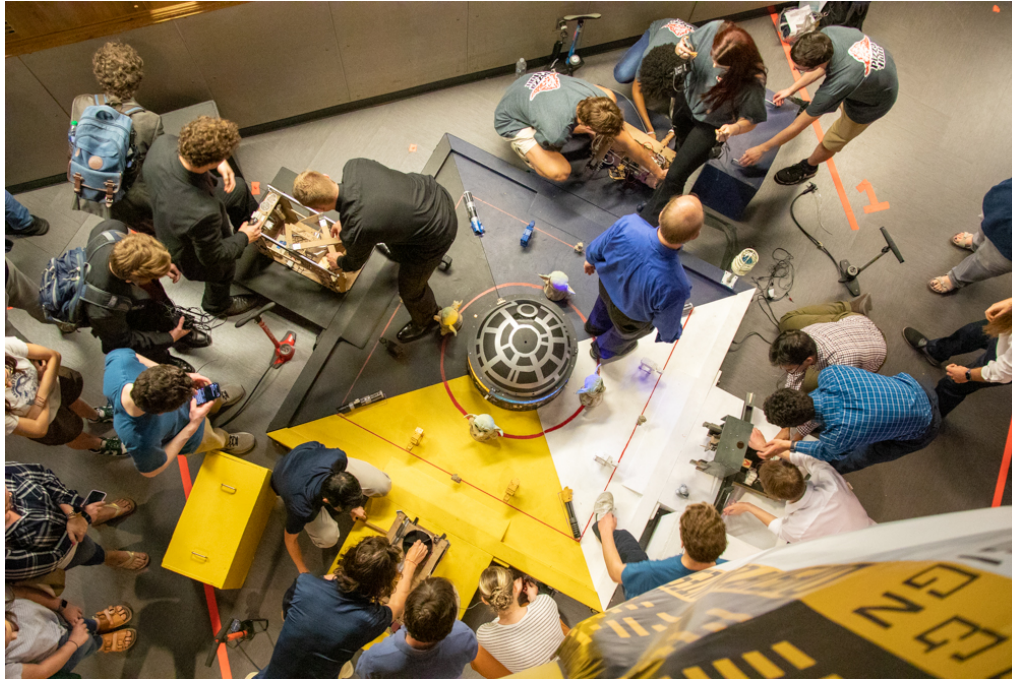


WoW Awards Inaugural Fellowships to Six Woodruff School Students

Women of Woodruff (WoW), an organization made up of Georgia Tech College of Engineering alumnae and friends, [has awarded six fellowships to female students in the Woodruff School](#). The inaugural WoW Fellows include Carolina Colón, Lina Daza Llanos, Elyssa Ferguson, Alison Jenkins, Maria Sattar, and Jordyn Schroeder.

The fellowships, which are aimed at attracting, supporting, and retaining women students,

were made possible by the founding members of WoW and through a generous commitment from Devesh Ranjan, Eugene C. Gwaltney, Jr. School Chair and professor.



The Spring ME 2110 Design Competition Awakens

[The force was strong with the teams at the spring 2023 ME 2110 Design Competition.](#) The theme for the event, which took place on April 14, was Star Wars.

This semester, all teams (Rebel, Sith, or Jedi) were required to complete a series of tasks and maneuvers with their entry build that included defeating the Imperial Walkers, retrieving a lightsaber, rescuing Baby Yoda, and destroying the Death Star.

The award for Design Review Best in Show went to team ADD (Adam Driver Driver) with a win for the dark side, however the force was balanced with team Let Qui-Gons Be Qui-Gons taking first place in the robotics challenge. In addition, team Papa Palpatine won second place and team The Yodesters won third place in the final competition.

[View a photo gallery from the event.](#)



Faculty and Staff Recognized with Woodruff School Awards

Faculty and staff [have been recognized for their contributions to the environment and success of the Woodruff School](#). Award winners were honored at the Faculty and Staff Honors and Awards Reception held last week. Congratulations to the 2022-23 honorees:

Mentor of the Year Award

- Costas Arvanitis, Associate Professor
- Amit Jariwala, Director of Design & Innovation
- Kristi Mehaffey, Senior Academic Professional and Undergraduate Academic Advisor

Culture Champion Award (Faculty)

- Alper Erturk, Carl Ring Family Chair and Professor

Culture Champion Award (Staff)

- Jacob Blevins, Lab and Facilities Coordinator
- Mack Curtis, Academic Assistant II

Staff of the Year Award

- Lenna Applebee, Academic Advisor II
- Veronica Leak, IT Support Professional II

Research Award

- Aaron Stebner, Associate Professor
- Ye Zhao, Assistant Professor
- Ting Zhu, Woodruff Professor

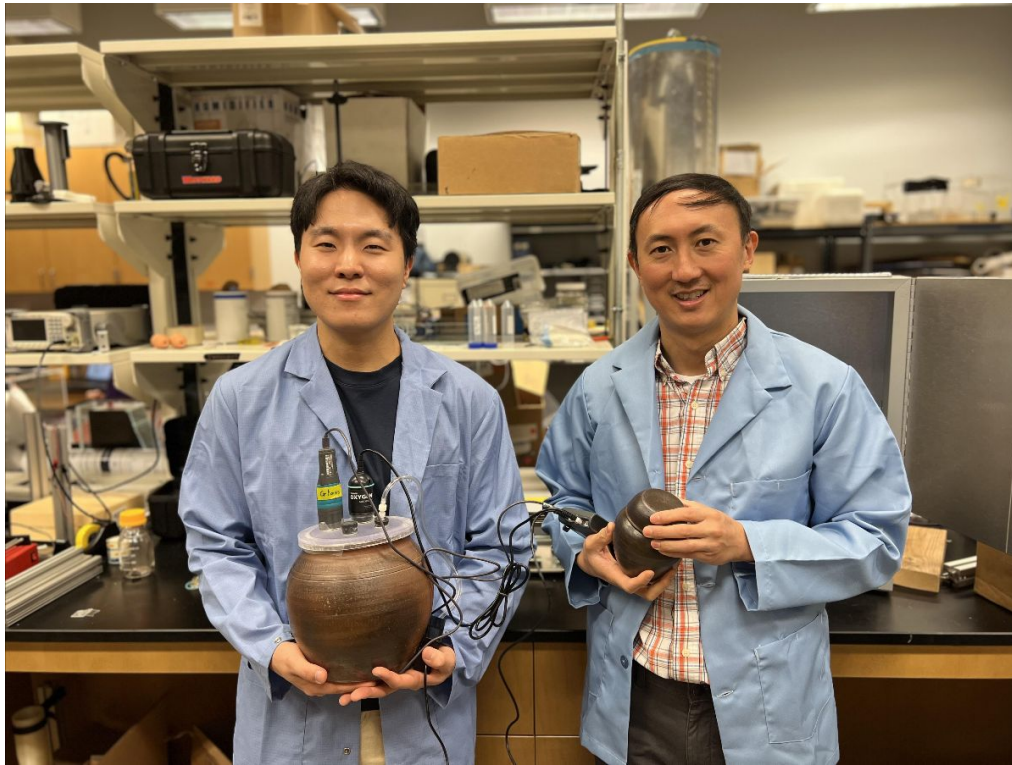
[View a photo gallery from the event.](#)



Meet Capstone Design Team, Hazlo Co.

Meet interdisciplinary Capstone Design team Hazlo Co. who is working with an international company to provide a novel solution to check valve design for the [spring 2023 Capstone Design Expo](#).

In a recent video Q&A, the team talks about their project, their design process, the challenges they've faced, and their experience working with their sponsor, Vernay Laboratories.



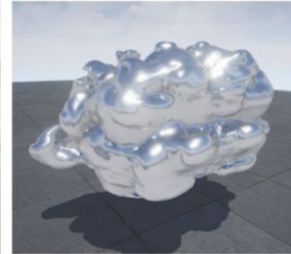
Want Better Kimchi? Make It Like the Ancients Did

Fermented foods like kimchi have been an integral part of Korean cuisine for thousands of years. Since ancient times, Korean chefs have used onggi — traditional handmade clay jars — to ferment kimchi. Today, most kimchi is made through mass fermentation in glass, steel, or plastic containers, but it has long been claimed that the highest quality kimchi is fermented in onggi.

Kimchi purists now have scientific validation, [thanks to recent research from Professor David Hu and Soohwan Kim](#), a second-year mechanical engineering Ph.D. student in Hu's lab.



In 1860, Édouard-Léon Scott de Martinville recorded the song "Au claire de al lune" on the phonoautograph, making the first recording of human speech. Here the phrase is depicted as a sculpture to be viewed, rather than heard. Breath exhaled from speaking is 3D scanned to form a solid, which is later printed. Words, phrases, and sounds become moving clouds of vapor, containing layers of complex folds and vortices. This piece is inspired by Charles Babbage's theory that spoken words have an everlasting impact on the universe. The *Atmospheric Memory* work by Rafael Lozano-Hemmer is part of a series of collaborations between artists and scientists working within the *Creative Turbulence* project.



2023 Communicating Science Through Art Competition Winner

The 2023 Communicating Science Through Art Competition winner is, "3D Print of Human Speech." The work was a joint effort between former Ph.D. student and current Research Engineer Sam Petter, current Ph.D. student Stephen Johnston, and former Ph.D. student Dan Fries, under the supervision of Eugene C. Gwaltney, Jr. School Chair and Professor Devesh Ranjan.

Thank you to all those who entered. Members of the Woodruff School community were delighted to see the creativity and expression made possible with the combination of these seemingly opposite disciplines.

New Hire



WELCOME TO THE **WOODRUFF SCHOOL**

➤ **ANDREA DOMINGUEZ**
PROGRAM SUPPORT COORDINATOR

Please join us in welcoming Andrea Dominguez to the Woodruff School as a Program Support Coordinator. Andrea is looking forward to providing professional and administrative support for the School.

Andrea received her Bachelor of Science degree in Health/Wellness and Sociology from the State University of New York at Cortland in 2022. During her time there, she held various positions and academic accolades in the Education Opportunity Program, and Health Promotion Office. She loves music, hiking, and traveling. Her office is located in MRDC 2200.

☎ **404-894-6708**


✉ **ANDREA.DOMINGUEZ@ME.GATECH.EDU**




Georgia Tech College of Engineering
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Study Break

Attention students:
Take a study break and enjoy
FREE snacks and swag
while engaging with members of
the Woodruff School community

 Thursday, April 27, 2023

 10 a.m. - 12 p.m.

 Wepfer Design Commons

*The Wepfer Design Commons is located
outside of the Flowers Invention Studio
in the MRDC building*





The Georgia Tech Alumni Association's 40 Under 40 program recognizes Georgia Tech alumni who innovate, set trends, and solve problems in a revolutionary way.



If you know alumni who make a difference and change lives in their communities, please nominate them now through May 1, 2023.



 **Georgia Tech**
Alumni Association.

Center for Human-Centric Interfaces and Engineering Guest Lecture

May 4, 2023 | 12:00 p.m. ET

Pettit Microelectronics (MiRC) | Room 102A | 791 Atlantic Drive NW

Soft Materials and Patient-Specific Designs: Strategies for Addressing Complex Human Anatomies

Featuring **Simon Dunham**, Assistant Professor of Electrical Engineering in Radiology
Dalio Institute for Cardiovascular Imaging and Weill Cornell Medicine

Abstract: Patient anatomies are complex and each is unique. It is challenging to develop robust devices that can operate successfully across the plethora of patient anatomies. Today, this results in the exclusion of certain patient populations and contributes to the occurrence of adverse events such as device leakage, device migration, and even embolization. More recently, 3D printing and other rapid prototyping technologies have allowed for creation of patient-specific designs. Similarly, advancements in functional soft materials allow for conformable designs that can adapt to complex anatomy, while performing additional functions. My work seeks to utilize these strategies to demonstrate effective solutions to a variety of common clinical applications, particularly those in the cardiac environment. I will describe how conformable and patient-specific designs can address critical challenges associated with treatment of Myocardial Ischemia, Cardiac Arrhythmia, and Structural Heart Disease. I will discuss the unique digital workflows and fabrication approaches my lab has developed to implement these technologies. From here, I will describe the performance of these devices as well as some approaches for evaluating device performance in real patient anatomies. Finally, I will discuss many of the challenges and limitations of patient-specific and conformable solutions.



Bio: Simon Dunham is an assistant professor of electrical engineering in radiology at Weill Cornell Medicine. He received his B.S. at the Georgia Institute of Technology and his Ph.D. from the University of Illinois, Champaign-Urbana (UIUC), both in Materials Science and Engineering. He also served as a postdoctoral researcher in the Department of Chemistry at Georgia Tech. During his training, his research primarily focused on nanomaterials, stretchable electronics, soft materials and non-traditional fabrication. After completing his postdoc, Dunham joined the faculty at Weill Cornell Medicine as a member of the Dalio Institute for Cardiovascular Imaging, where he oversees a research group focused on developing translational technologies in collaboration with the clinical faculty at Weill Cornell. Dunham has authored over 45 publications, 15 patents and sits on regulatory panels for a wide variety of regulatory groups (ISQ, AAMI, and IEC) addressing topics from cardiac occluders to wearable electronics.



View the live stream: gatech.zoom.us/j/94179294782

There is no cost to attend this event, but registration is required.
Reserve your seat at b.gatech.edu/41wGQFg



IEN Center for Human-Centric
Interfaces and Engineering

chcie.me.gatech.edu



Georgia Tech College of Engineering
George W. Woodruff School
of Mechanical Engineering

Discovering Mechanical Engineering:

A VISIT TO THE GEORGE W. WOODRUFF SCHOOL OF MECHANICAL ENGINEERING


Join us for an informative event hosted by the George W. Woodruff School of Mechanical Engineering and the **Women of Woodruff (WoW)** at Georgia Tech, where you will learn about the exciting opportunities available in mechanical engineering and related fields.

WHEN
FRIDAY, MAY 12
10:00AM-4:00PM

WHAT

- RESEARCH OPTIONS
- APPLICATION REVIEW
- FUNDING OPTIONS
- LAB TOURS

RSVP



SCAN ME

TO RSVP OR FOR FURTHER INFORMATION, PLEASE CONTACT MACK CURTIS AT MACK.CURTIS@ME.GATECH.EDU



Call for FY24 Initiative Leads

Applications Due May 21, 2023

We're seeking diverse, interdisciplinary, and active academic and research faculty, with a range of experience levels, who have interest in research leadership and community building to serve as initiative leads.

Learn more about IMat's research initiatives at
b.gatech.edu/3o2l5hU



Seminars, Presentations and Defenses

M.S. Thesis Presentation by [Enea Dushaj](#)

Advisors: Christopher Saldana, Katherine Fu

Title: "Development and Application of an Article-Based Evaluation of Focal Plane Error in Laser Powder Bed Fusion"

When: Friday, April 21, 2023, 10:00 a.m.

Where: LOVE Building, Room 183

Ph.D. Proposal Presentation by [Timothy Chen](#)

Advisor: Matthew T. McDowell

Title: "Analyzing the Electro-Chemo-Mechanical Behavior of Aluminum Foil Anodes for Lithium-Ion Batteries"

When: Friday, April 21, 2023, 12:00 p.m.

Where: MRDC Building, Room 4211

M.S. Thesis Presentation by [Gautam Rushil Vidya Sagar Pingali](#)

Advisor: Sourabh Saha

Title: "Computational Modeling of Projection Two-Photon Lithography and Evaluation of Process Limits"

When: Monday, April 24, 2023, 10:00 a.m.

Where: MRDC Building, Room 3515

Ph.D. Dissertation Defense by [Hoyoung Lee](#)

Advisor: Seung Woo Lee

Title: "Electrochemical Exfoliation of Graphene and Application in Energy Storage System"

When: Monday, April 24, 2023, 1:00 p.m.

Where: Love Building, Room 210

Ph.D. Proposal Presentation by [Edouard MacHenaud](#)

Advisor: David Nelson Ku

Title: "Edouard Machenaud Thesis Proposal"

When: Monday, April 24, 2023, 2:00 p.m.

Where: EBB Building, CHOA

M.S. Thesis Presentation by [Anthony Lim](#)

Advisor: C-K Chris Wang

Title: "MC-based super-positioning of single-track standard DNA damage files for in-silico evaluation"

When: Monday, April 24, 2023, 3:30 p.m.

Where: Boggs, 3-47

Ph.D. Dissertation Defense by [Stuart Montgomery](#)

Advisor: Jerry Qi

Title: "Grayscale Digital Light Processing 3D Printing and its Applications in Advanced Manufacturing"

When: Tuesday, April 25, 2023, 10:00 a.m.

Where: MRDC Building, Room 4211

M.S. Thesis Presentation by [Ira Soltis](#)

Advisor: Woonhong Yeo

Title: "Study of Manufacturing Processes for Flexible Biosensors and Bioelectronic Platforms"

When: Tuesday, April 25, 2023, 11:00 a.m.

Where: Pettit Microelectronics Building, Room 102A

Ph.D. Dissertation Defense by [Alexander Stanforth](#)

Advisor: C-K Chris Wang

Title: "Characterization and Validation of a Proton Minibeam System and Evaluation of Treatment Planning Systems"

When: Tuesday, April 25, 2023, 1:00 p.m.

Where: Boggs, 3-47

M.S. Thesis Presentation by [Pierce Heintzelman](#)

Advisor: Satish Kumar

Title: "Multi-scale Modeling of Thermal and Mechanical Properties of Composites"

When: Tuesday, April 25, 2023, 1:00 p.m.

Where: [Virtual](#)

M.S. Thesis Presentation by [Brian Dulaney](#)

Advisor: Shannon Yee

Title: "Performance of a Thermal Battery Utilizing a Novel Thermal Storage Material"

When: Tuesday, April 25, 2023, 1:00 p.m.

Where: MRDC Building, Room 3515

M.S. Thesis Presentation by [Jared Matthews](#)

Advisor: Woonhong Yeo

Title: "Wearable Medical Device Ecosystems Through Machine Learning and Cloud Computing"

When: Wednesday, April 26, 2023, 1:00 p.m.

Where: Pettit Microelectronics Building, Room 102A

Ph.D. Dissertation Defense by [Junbo Peng](#)

Advisor: C-K Chris Wang

Title: "Single Scan Dual Energy Computed Tomography Using Static Detector Modulation"

When: Thursday, April 27, 2023, 9:30 a.m.

Where: Boggs, 3-47

Ph.D. Proposal Presentation by [Ananya Bhardwaj](#)

Advisors: Karim Sabra, Alper Erturk

Title: "Ultrasound-Powered Wireless Underwater Acoustic Identification Tags for Backscatter Communication"

When: Thursday, April 27, 2023, 10:00 a.m.

Where: MRDC Building, Room 3515

M.S. Thesis Presentation by [Kun Ryu](#)

Advisor: Seung Woo Lee

Title: "Enhancing Low-Temperature Electrochemical Performance of Lithium Secondary Batteries"

When: Thursday, April 27, 2023, 12:15 p.m.

Where: Love Building, Room 210

M.S. Thesis Presentation by [Joshua Johnson](#)

Advisor: Ellen Yi Chen Mazumdar

Title: "Digital Holography for Exploring Instabilities and Breakup of Liquid Jets in Supersonic Crossflow"

When: Friday, April 28, 2023, 11:00 a.m.

Where: Ben T. Zinn Combustion Lab, 107



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Please feel free to send us your suggestions and feedback.

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