



2025

ENGINEERING GRADUATE SYMPOSIUM

*THREE MINUTE THESIS
COMPETITION
(3MT)*

2025 ENGINEERING GRADUATE SYMPOSIUM JUDGES



Dr. Jiasi Chen

Associate Professor
Electrical Engineering
and Computer Science



Dr. Vineet Kamat

Director of Graduate Degree Programs
College of Engineering
John L. Tishman Professor
Civil and Environmental Engineering



Dr. Julia Kramer

Assistant Professor
Mechanical Engineering



Dr. Jeffrey Abell

Director & Chief Scientist
for Global Manufacturing/
Manufacturing Systems Research
General Motors



Dr. Kazu Saitou

Associate Chair for Graduate Education
Professor
Mechanical Engineering

A **special thank you** to all of the Preliminary Round judges who served EGS 3MT:

Scott Low
Dr. Kevin Zhang
Dr. Russell Urie

Dr. Emad Sanei
Dr. Muhammad Rashad
Dr. Subhendu Chakraborty

Dr. Faezeh Shanehsazzadeh
Dr. Jianxing Sun
Dr. Raj Pradip Khawale

Dr. Camila Vesga
Dr. Xianzhang Xu
Dr. Hoonsik Nam

PROGRAM SCHEDULE

THURSDAY, FEBRUARY 27, 2025

12:00 - 12:30 PM	Finalists and judges check-in
1:00 - 1:30 PM	Welcoming remarks
1:30 - 1:40 PM	Competition rules overview
1:50 - 2:50 PM	Presentations - Session 1
2:50 - 3:00 PM	Brief intermission
3:05 - 3:20 PM	<i>Keynote Address</i> Aditya Varma Muppala 2024 Towner Prize for Outstanding Ph.D Research Awardee
3:20 - 3:50 PM	Intermission
3:50 - 4:50 PM	Presentations - Session 2
4:50 - 5:20 PM	Informal mixer
5:30 PM	Awards ceremony and closing remarks



3MT FINALS: SESSION 1

1:50 - 2:50 PM

MALIK ALMUNIF

Network-based design of reconfigurable intelligent surfaces

SUMIT ASTHANA

Designing effective AI-assisted admissions assessment workflows for improving educational equity

DORIAN BOBBETT

Understanding doctoral engineering students' relationships with their advisors

MEAGAN BRUCKER-HAHN

Uncovering how chronic pain is modulated through computational modeling of spinal cord stimulation

COLLEEN CAMPBELL

Get excited! Improving radiation detectors with optical excitation

AMANI DJOUADI

Unlocking the blood brain barrier: targeting CNS-resident immune cells using a bispecific antibody shuttle

SAHIL HALARNKAR

Local modifications to tune reactant activities at electrocatalyst surfaces

TRANG HOANG

Baker's yeast immunoengineering: committing to global vaccine equity

ZACHARY JEROME

An online scalable signal retiming system using connected vehicle GPS points

MAURYCY KRZYZANOWSKI

Identifying organic co-solvents via machine learning solubility predictions in organic solvents and water

STANLEY LEWIS

Learning articulated object representations for robotics

ANDRES MIRANDA MANON

Performance of linear aerogel receivers based on experimental characterization at an industry relevant scale

DIEGO MUZQUIZ

Beryllium carbide as a moderating material for advanced nuclear reactors

KEYNOTE ADDRESS

3:05 - 3:20 PM



ADITYA VARMA MUPPALA

2024 Towner Prize for Outstanding Ph.D. Research Awardee

Ph.D. Candidate
Electrical & Computer Engineering

Aditya Varma Muppala is a Ph.D. candidate at the University of Michigan, where he earned an M.S. in Electrical Engineering (2020) and an M.S. in Mathematics (2023). His research lies at the intersection of applied electromagnetics and integrated circuits, with a focus on millimeter-wave imaging radars and antennas, high frequency integrated circuits, radar signal processing and microwave measurement techniques. He is a recipient of the 2023-2024 Rackham Predoctoral Fellowship, the 2024 College of Engineering's Towner Prize for Outstanding Graduate Student Instructor, and the 2024 College of Engineering's Towner Prize for Outstanding Ph.D. Research.

3MT FINALS: SESSION 2

3:50 - 4:50 PM

JOAN NWATU

Bridging the digital divide: performance variation across socioeconomic factors in vision-language models

AWWAL OLADIPUPO

Multilayered machine-learned interatomic model for fast design, and discovery of materials

VALENTIN PAULY

Prediction of neutron-irradiated microstructures via dual-ion irradiation

REBECCA PERELES

An engineered biomaterial for monitoring breast cancer progression

MOHAMMAD AAMIR SOHAIL

From genes to disease: inferring gene regulatory networks with quantum computing

LUCY SPICHER

From maternal instinct to data-driven insight: wearable sensors for fetal movement detection

MOHAMMAD ASADI TOKMEDASH

Leveraging nature's nano-strategies to combat biomaterial infections

ELISA TSAI

Harm terms and where to find them

FAN-WEI WANG

Residual stress-driven self-deicing coatings

YAN XIE

Machine learning detection of melting layers

CHIH-MEI YOUNG

Rainbow structural colors of electric field induced self-assembled colloidal spheres

ZHIHANG ZHANG

Battery operational state estimation for MWh-scale energy storage systems

NAURIN ZOHA

Equity in hunger relief

2025 3MT FINALISTS



**MALIK
ALMUNIF**

ELECTRICAL &
COMPUTER ENG.

Advisor:
Anthony Grbic



**COLLEEN
CAMPBELL**

NUCLEAR
ENGINEERING

Advisor:
David Wehe



**SUMIT
ASTHANA**

COMPUTER
SCIENCE & ENG.

Advisor:
Nikola Banovic



**AMANI
DJOUADI**

BIOMEDICAL
ENGINEERING

Advisors:
James Moon
Colin Greineder



**DORIAN
BOBBETT**

ENG. EDUCATION
RESEARCH

Advisor:
Karin Jensen



**SAHIL
HALARNKAR**

CHEMICAL
ENGINEERING

Advisor:
Nirala Singh



**MEAGAN
BRUCKER-HAHN**

BIOMEDICAL
ENGINEERING

Advisor:
Scott Lempka



**TRANG
HOANG**

CHEMICAL
ENGINEERING

Advisor:
Fei Wen

2025 3MT FINALISTS



**ZACHARY
JEROME**

CIVIL & ENV.
ENGINEERING

Advisor:
Henry Liu



**DIEGO
MUZQUIZ**

NUCLEAR
ENGINEERING

Advisor:
Stephen Raiman



**MAURYCY
KRZYZANOWSKI**

CHEMICAL
ENGINEERING

Advisor:
Bryan Goldsmith



**JOAN
NWATU**

COMPUTER
SCIENCE & ENG.

Advisor:
Rada Mihalcea



**STANLEY
LEWIS**

ROBOTICS

Advisor:
Odest Chadwicke
Jenkins



**AWWAL
OLADIPUPO**

CHEMICAL
ENGINEERING

Advisor:
Rebecca Lindsey



**ANDRES
MIRANDA MANON**

CHEMICAL
ENGINEERING

Advisor:
Andrej Lenert



**VALENTIN
PAULY**

NUCLEAR
ENGINEERING

Advisor:
Gary S. Was

2025 3MT FINALISTS



**REBECCA
PERELES**

BIOMEDICAL
ENGINEERING

Advisor:
Lonnie Shea



**ELISA
 TSAI**

COMPUTER
SCIENCE & ENG.

Advisor:
Atul Prakash



**MOHAMMAD
AAMIR SOHAIL**

ELECTRICAL &
COMPUTER ENG.

Advisor:
Sandeep Pradhan



**FAN-WEI
WANG**

CHEMICAL
ENGINEERING

Advisor:
Anish Tuteja



**LUCY
SPICHER**

MECHANICAL
ENGINEERING

Advisors:
Kathleen Sienko
Xun Huan



**YAN
XIE**

CLIMATE & SPACE
SCIENCES & ENG.

Advisor:
Claire Pettersen



**MOHAMMAD ASADI
TOKMEDASH**

CHEMICAL
ENGINEERING

Advisor:
Jouha Min



**CHIH-MEI
YOUNG**

CHEMICAL
ENGINEERING

Advisor:
Michael Solomon

2025 3MT FINALISTS



**ZHIHANG
ZHANG**

MECHANICAL
ENGINEERING

Advisor:
Wei Lu



**NAURIN
ZOHAN**

INDUSTRIAL &
OPERATIONS ENG.

Advisor:
Julie Ivy

EGS COMMITTEE



**ANAN
GHRAYEB**

CO-CHAIR

MECHANICAL
ENGINEERING



**BHAVANA
KOMARAJU**

CO-CHAIR

MECHANICAL
ENGINEERING



**ABDALLA
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SYS. & DESIGN



**JACOB
PAVELKA**

WEB LEAD

CIVIL & ENV.
ENGINEERING

EGS ORGANIZING COMMITTEE



Dr. Vineet Kamat



**Associate Dean
Dr. Krista Wigginton**



Dr. Kazu Saitou



Emily Bermudez



Purabi Devi



Rebecca Flintoft



Mary Saah



Carol Wisner

A special thank you to:



