

## COEIT Research Day: Schedule at a Glance

Friday, April 11, 2025

9am - 3pm

Ballroom and Lounge	UC 310	UC 312
9:00am <b>Opening Remarks (Ballroom)</b>		
9:30 - 10:45am  <b>Research Talks: Physical Systems</b>	9:30 - 10:15 am  <b>Panel Discussion: <i>COEIT Interdisciplinary Proposal Awardees</i></b>  Sanorita Dey (CSEE), Molly Mollica (ME), Tyler R. Josephson (CBEE) and Foad Hamidi (IS)	9:30 - 11:30am  <b>Research Talks: AI Foundations and Applications</b>
11am - 12pm  <b>Panel Discussion: <i>Government Partners</i></b>  Nishant Shah (State of MD), Eric Wachsman (MD Energy Innovation Institute), Bhanu Sood (NASA Goddard) and Weimin Zhou (Army Research Laboratory)	10:15am - 12:30pm  <b>Research Talks: COEIT Interdisciplinary Proposals</b>	11:30am - 12:30pm  <b>Panel Discussion: <i>Industry Collaborators</i></b>  Mark Benesch (AstraZeneca), Richard Coaxum (Constellation) and Richard Wright (Lockheed Martin)
12 - 3pm  <b>Refreshments and Poster Session</b>	<i>Break</i>	
	1:00 - 2:30pm  <b>Research Talks: Education</b>	1:00 - 2:30pm  <b>Research Talks: Security and Privacy</b>
<i>Additional Talks / Birds-of-a-Feather Sessions</i>		

# COEIT Research Day: Parallel Session Program Organized by Room

Friday, April 11, 2025

9am - 3pm

## UC Ballroom Lounge

9:30 - 10:45am | Research Talks: Physical Systems

- A Multi-Objective Topology Optimization for Object Classification at the Speed of Light – *Sumya Hamid Oishe and Ergun Simsek*
- Data-driven Fuzzy Control for Time Optimal Aggressive Trajectory Tracking – *August Phelps, Juan Augusto Paredes Salazar and Ankit Goel*
- Assessment of Invariance-Embedded Machine Learning Models for Sub-Grid Scale Stress in Meso-Scale Hurricane Boundary Layer Flows – *Md Badrul Hasan, Meilin Yu and Tim Oates*

11am - 12pm | Panel Discussion with Government Partners

*Panelists affiliated with state and federal government organizations will share their experiences of collaboration across academia and government, followed by Q&A.*

Panelists

- Nishant Shah – Senior Advisor for Responsible AI, State of MD
- Eric Wachsman – Director, Maryland Energy Innovation Institute
- Bhanu Sood – Deputy Center Chief Technologist, NASA Goddard
- Weimin Zhou – Research Physicist, Army Research Laboratory

## UC Ballroom

12 - 3pm | Poster Session and Refreshments

*The poster session will feature 90 posters representing all four academic departments and many of the research centers within COEIT.*

## UC 310

9:30 - 10:15 am | Panel Discussion: COEIT Interdisciplinary Proposals

*Recipients of 2024 COEIT Interdisciplinary Proposal Awards will share their experiences and reflect on being engaged in interdisciplinary collaboration, followed by Q&A.*

Panelists

- Sanorita Dey (CSEE)
- Molly Mollica (ME)
- Tyler R. Josephson (CBEE)
- Foad Hamidi (IS)

10:15am - 12:30pm | Research Talks: COEIT Interdisciplinary Proposals

- Cellular Force Generation on Extracellular Matrix Mimetic Surfaces – *Luis Pinzon-Herrera, Shayan Manuchehrfar, Kwesi Halm, Roaa Hadi, Jorge Almodovar and Molly Y. Mollica*
- Leveraging large language models (LLMs) to Create Personalized Augmentative and Alternative Communication Systems (AACs) – *Foad Hamidi and Lara Martin*

- Sources of Nonlinearity in Phase Noise of MUTC Photodetectors at Comb-Line Frequencies – *Ishraq Md Anjum, Ergun Simsek, Seyed Ehsan Jamali Mahabadi, Thomas F. Carruthers and Curtis R. Menyuk*
- An Interpretable and Generalizable Neuro-Symbolic Framework for Accurate Quantitative Precipitation Estimation – *Mostafa Cham, Olivia Zhang, Haotong Jing, Weikang Qian, Yixin Wen and Jianwu Wang*

### 1:00 - 2:30pm | Research Talks: Education

- COIL Method: Multidisciplinary Global Engineering Capstone Class Impact: Faculty and Student Insights Across Four Countries – *Jamie Gurganus, Yashin Brijmohan, Lani McGuire and Michael M. Malschützky*
- Does Generative AI Help or Hurt Student Writing in Engineering Labs? – *Gautom Das*
- Increasing Visual Literacy With Collaborative Foraging, Annotation, Curation, and Critique – *Rebecca Marie Williams, Afrin Unnisa Syed and Krishna Vamsi Kurumaddali*
- Intelligent Coaching of Data Storytelling in the era of AI – *Karen Chen and Jennifer Posada*

## UC 312

### 9:30 - 11:30am | Research Talks: AI Foundations and Applications

- Cognitive Vision: Concepts, Contexts, and Semantics – *Tejas Gokhale*
- Collaborative Sensing and Task Execution for Distributed Autonomous Systems – *Anuradha Ravi and Nirmalya Roy*
- Do LLMs Adhere to Label Definitions? – *Seyedali Mohammadi, Bhaskara Hanuma Vedula, Hemank Lamba, Edward Raff, Ponnurangam Kumaraguru, Francis Ferraro and Manas Gaur*
- Multimodal Reasoning About Human Intentions – *Kasra Darvish, Aidan Newell, An May, Ruchen Wen, Cynthia Matuszek and Francis Ferraro*
- Exploring the Impact of ChatGPT on Computational Learning: Insights from Early-Stage Information Systems Students in an Introductory Programming Course – *Omobolanle Niyi Owoeye, Srushti Rajesh Dharmale, Uzma Hasan, Patricia Ordóñez and Edward Dillon*

### 11:30am - 12:30pm | Panel Discussion on Industry Collaboration

*Representatives from AstraZeneca, Constellation, and Lockheed Martin will discuss opportunities for researchers to build relationships with industry partners, followed by Q&A.*

#### Panelists

- Mark Benesch (AstraZeneca)
- Richard Coaxum (Constellation)
- Richard Wright (Lockheed Martin)

### 1:00 - 2:30pm | Research Talks: Security and Privacy

- Analyzing Cybersecurity Risks in the Digital Health Ecosystem with Patients with Complex Care Needs – *Zainab Balogun, Melissa Carraway, Jainam Basra and Tera Reynolds*
- Strengthening Workforce Education: Excellence in Programming Securely (SWEEPS) – *Ida Ngambeki, Deborah Kariuki, Matt Bishop and Jun Dai*
- Optimal Resource Allocation in Distributed Systems for Cybersecurity – *Aryya Gangopadhyay and Neil Kpamegan*
- Privacy Scoring in Recommender Systems – *Jiajie He, Yuechun Gu and Keke Chen*