

# 2nd COEIT Research Day, 2025



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## Research Day Working Group

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# COEIT Research Day: Schedule at a Glance

Friday, April 11, 2025 | 9am - 3pm

University Center Building (UC)

UC Ballroom	UC Lounge	UC 310	UC 312
9:00am <b>Opening Remarks (Ballroom)</b> Anupam Joshi and Vandana Janeja			
10:30 - 11:30am <b>Poster Setup</b>	9:30 - 10:45am <b>Physical Systems</b> <i>Research Talks</i>	9:30 - 10:15 am <b>Panel Discussion:</b> <b>COEIT Interdisciplinary Proposal Awardees</b>  <b>Sanorita Dey (CSEE), Molly Mollica (ME), Tyler R. Josephson (CBEE) and Foad Hamidi (IS)</b>	9:30 - 11:30am <b>AI Foundations and Applications</b> <i>Research Talks</i>
		10:15am - 10:45am Invited Talk: <b>Joerg Schlatterer</b> (American Chemical Society)	
	11:00am - 12:00pm <b>Panel Discussion: Government Partners</b>  <b>Nishant Shah</b> (State of MD), <b>Eric Wachsman</b> (MD Energy Innovation Institute), and <b>Weimin Zhou</b> (Army Research Laboratory)	10:45am - 12:30pm <b>COEIT Interdisciplinary Proposals</b> <i>Research Talks</i>	11:30am - 12:30pm <b>Panel Discussion: Industry and Innovation</b>  <b>Mark Benesch</b> (AstraZeneca), <b>Richard Coaxum</b> (Constellation) and <b>Mark Nelson</b> (AWS)
12:00 - 3:00pm Refreshments and <a href="#">Poster Session</a>	Break		
	1:00 - 2:30pm <b>Security and Privacy</b> <i>Research Talks</i>	1:00 - 2:30pm <b>Education</b> <i>Research Talks</i>	1:00 - 2:30 pm Invited Talk: <b>Chaitan Baru</b> (NSF) - <i>Joining Virtually</i>  Invited Talk: <b>Mahmooda Sultana</b> (NASA Goddard)
<i>Birds-of-a-Feather Sessions</i>			



## COEIT Research Day: Parallel Sessions by Room

Friday, April 11, 2025 | 9am - 3pm

### UC Ballroom

9:00 - 9:20 am | Opening Remarks

*Dr. Anupam Joshi, COEIT and CSEE and Dr. Vandana Janeja, COEIT and IS*

12 - 3pm | Poster Session and Refreshments

*The poster session will feature 84 [posters](#) representing all four academic departments and many of the research centers within COEIT.*

*The session will be broken up in the following way:*

**12 to 1pm:** All presenters stay with their poster.

**1 to 2pm:** Odd numbered posters present; even numbers may view other posters.

**2 to 3pm:** Even numbered posters present; odd numbers may view other posters.

### UC Ballroom Lounge

9:30 - 11:00am | Physical Systems

*Session Chair: Ergun Simsek, Computer Science and Electrical Engineering*

#### [Abstracts](#)

- 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*

11:00am - 12:00pm | 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.*

*Moderator: Vandana Janeja, COEIT and IS*

Panelists

- Nishant Shah – Senior Advisor for Responsible AI, State of MD
- Eric Wachsman – Director, Maryland Energy Innovation Institute
- Weimin Zhou – Research Physicist, Army Research Laboratory



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

Session Chair: *Mohammad Samarah, Information Systems*

### [Abstracts](#)

- Analyzing Cybersecurity Risks in the Digital Health Ecosystem with Patients with Complex Care Needs  
*Zainab Balogun, Melissa Carraway, Jainam Basra and Tera Reynolds*
- 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*
- Strengthening Workforce Education: Excellence in Programming Securely (SWEEPS)  
*Ida Ngambeki, Deborah Kariuki, Matt Bishop and Jun Dai*

## 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.*

Moderator: *Zhiyuan Chen, Information Systems*

#### Panelists

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

### 10:15am - 12:30pm | Interdisciplinarity in Research

Session Chair : *Ruey-Hung Chen, Mechanical Engineering*

### [Abstracts](#)

- **Invited Talk:** Advancing Career Growth with the American Chemical Society  
Joerg Schlatterer – Director of the Office of Research Grants, American Chemical Society
- 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



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*Mostafa Cham, Olivia Zhang, Haotong Jing, Weikang Qian, Yixin Wen and Jianwu Wang*

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

*Session Chair: Mariajose Castellanos, Chemical, Biochemical and Environmental Engineering*

### [Abstracts](#)

- 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*
- 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*

## UC 312

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

*Session Chair: Tim Finin, Computer Science and Electrical Engineering*

### [Abstracts](#)

- 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?  
*Syedali 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 - Industry and Innovation

*Representatives from industry and innovation partners will discuss opportunities for researchers to build relationships with industry and jump start research, followed by Q&A.*

*Moderator: Anupam Joshi, COEIT and CSEE*

Panelists



- Mark Benesch – Capital Portfolio Director, AstraZeneca
- Richard Coaxum – Manager, Corporate Strategy, Constellation
- Mark Nelson – Director, Amazon Web Services

### 1:00pm - 2:30pm | Invited Talks

*Session Chair: Upal Ghosh, CBEE*

- Chaitan Baru – Technology, Innovation and Partnerships Directorate, NSF  
(Virtual)
- Mahmooda Sultana – NASA Goddard Space Flight Center



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