

2nd COEIT Research Day, 2025



COLLEGE OF ENGINEERING
& INFORMATION TECHNOLOGY

Research Day Working Group

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COEIT Research Day: Schedule at a Glance

Friday, April 11, 2025

9am - 3pm

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



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 Vandana Janeja, COEIT and IS

12 - 3pm | Poster Session and Refreshments

The poster session will feature 85 COEIT [posters](#) representing all four academic departments and many of the research centers within COEIT.

UC Ballroom Lounge

9:30 - 11:00am | Physical Systems

Session Chair: Ergun Simsek, Computer Science and Electrical Engineering

- 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
- Bhanu Sood — Deputy Center Chief Technologist, NASA Goddard
- Weimin Zhou — Research Physicist, Army Research Laboratory

1:00pm - 2:00pm | Invited Talk: Chaitan Baru — Technology, Innovation and Partnerships Directorate, NSF



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

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

Session Chair : Ruey-Hung Chen, Mechanical Engineering

- 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 | Education

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

- 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

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

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

Session Chair: Mohammad Samarah, Information Systems

- 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

