



EECS Colloquium Series

The Department of Electrical Engineering and Computer Science at the University of Wyoming is offering the EECS Colloquium series as a service to all who are interested in Electrical Engineering and Computer Science. Most seminars in Fall 2024 are scheduled for Monday 3:10PM -- 4:00PM in EERB 251. For help finding the locations of our seminar meetings, consult the on-line UWyo campus map. [📍](#)

For questions about this page or to schedule talks, please contact Diksha Shukla: dshukla@uwyo.edu.

Here is a list of seminar schedules.

Previous EECS Colloquium Speakers.

- Fall 2024 EECS Colloquium Speakers
- Spring 2024 EECS Colloquium Speakers
- Fall 2023 EECS Colloquium Speakers

EECS Colloquium Schedule, Spring 2025



EECS Colloquium Proof Verification with Lurch Plus

March
31

Speaker: Kenneth G. Monks, University of Scranton

When: 3:10PM ~ 4:00PM, Monday, March 31, 2025

Where: EERB 251

Abstract: Would your students benefit from an easy-to-use, open-source, web-based word processor that could check their assigned mathematical proofs? In this talk, we introduce Lurch, our software project designed specifically for this purpose. We will explain how you can use this software and accompanying course materials and customize it for your own purposes. While existing proof verification tools like Lean, Isabelle, Coq, and Mizar are powerful and effective, they often have steep additional learning curves and can be difficult to customize. We will explain how the custom Lurch validation algorithm overcomes these challenges and pose some questions for future work.

Additional information is available at lurch.plus.

Bio: Kenneth G. Monks is a Professor of Mathematics at the University of Scranton, where he has taught since 1990. He holds a Ph.D. in Algebraic Topology from Lehigh University and has published in both pure and applied mathematics, with particular interests in discrete dynamical systems, the \$3x+1\$ problem, the cohomology of the Steenrod algebra, and computer formalization of mathematics. He is the author and lead developer of Lurch, a proof-checking word processor for teaching mathematical reasoning, and has mentored numerous student research projects. Dr. Monks is also the founding director of the Prove it! Math Academy.



EECS Colloquium Concept-based Semantic Analysis of Deep Neural Networks

April
14

Speaker: Ravi Mangal, Colorado State University, Fort Collins, CO.

When: 3:10PM ~ 4:00PM, Monday, April 14, 2025

Where: EERB 251

Abstract: The analysis of vision-based deep neural networks (DNNs) is highly desirable but challenging due to the difficulty of expressing formal specifications for vision tasks and the lack of efficient verification procedures. In this talk, I will first describe a logical specification language designed to facilitate writing specifications about vision-based DNNs in terms of high-level, human-understandable concepts. I will then describe how we can use emerging multimodal, vision-language, foundation models (VLMs) as a lens to analyze vision models. In particular, I will demonstrate how we can leverage VLMs such as CLIP to encode our concept-based specifications and to design an efficient procedure for verifying vision models with respect to these specifications.

Bio: Ravi Mangal is an assistant professor at Colorado State University. He is interested in all aspects of designing and applying formal methods for assuring the correctness and safety of software systems. His current research focuses on developing methods for formally analyzing the safety and trustworthiness of learning-enabled systems. Previously, he was a postdoctoral researcher at Carnegie Mellon University in the Security and Privacy Institute (CyLab) and received his PhD in Computer Science from Georgia Institute of Technology.



EECS Colloquium
TBA

Speaker: Francisco R. Ortega, Colorado State University, Fort Collins, CO.

When: 3:10PM ~ 4:00PM, Friday, April 25, 2025
Where: EERB 251

Abstract: TBA

Bio: TBA



EECS Colloquium
TBA

Speaker: Dr. Ed Seidel, President of the University of Wyoming, Laramie, WY.

When: 3:10PM ~ 4:00PM, Monday, April 28, 2025
Where: EERB 251

Abstract: TBA

Bio: TBA



EECS Colloquium
Motion Planning for Multipurpose Autonomous Systems

Speaker: Dr. Juan D. Hernández, School of Computer Science and Informatics, Cardiff University, UK.

When: 3:10PM ~ 4:00PM, Monday, May 05, 2025
Where: EERB 251

Abstract: Once limited to highly controlled industrial environments only, today robots are continuously evolving towards becoming autonomous entities, capable of operating in changing and unstructured settings. This evolution is only possible due to multi-disciplinary efforts, which endow autonomous systems with the required capabilities to deal with such changing and uncertain conditions. One of these disciplines, commonly known as motion planning, consists in computational techniques that calculate collision-free and feasible motions of autonomous systems. In this talk, we will discuss how motion planning is being used to improve the decision-making capabilities of different types of autonomous systems such as autonomous underwater vehicles (AUVs), autonomous/automated cars and service robots.

Bio: Juan D. Hernández received the BSc degree in electronic engineering from the Pontifical Xavierian University (Cali, Colombia) in 2009, the MSc degree in robotics and automation from the Technical University of Madrid (Spain) in 2012, and the PhD degree in technology (robotics) from the University of Girona (Spain) in 2017. He worked as a Robotics Research Engineer at the Netherlands Organisation for Applied Scientific Research (TNO) in 2017-2018. He was a Postdoctoral Research Associate at Rice University (Houston, TX, USA) in 2018-2019. He was a Senior Engineer for simulation of autonomous systems at Apple Inc. (Sunnyvale, CA, USA) in 2019-2020. In December 2020, he joined Cardiff University, where he is now an Associate Professor (UK Senior Lecturer) in the School of Computer Science and Informatics. His research activity is focused on hybrid motion planning approaches that combine classical model-based methods with machine learning techniques, as well as the use of multimodal interfaces that enhance human-robot interaction and collaboration. Dr Hernández is a Senior member of the IEEE and its Robotics and Automation Society.