Ryan Hoover, P.E.

Education

Carnegie Mellon University, Pittsburgh, PA

- Ph.D., Mechanical Engineering, August 2023
  - Advisor: Kenji Shimada
- M.S., Mechanical Engineering, May 2010
- B.S., Mechanical Engineering, May 2005
  - Minors in Robotics and Jazz Performance

Teaching Experience

Robert Morris University, Moon Township, PA Spring 2017 – Fall 2017

Adjunct Professor

- Taught ENGR4400 Device Control during the Spring 2017 and Fall 2017 terms
- Developed lecture materials on control systems for industrial control systems

Carnegie Mellon University, Pittsburgh, PA

Teaching Assistant

- 24-311 Numerical Methods Spring 2021
  - Held office hours to assist students with homework and exam preparation
  - Delivered a lecture to introduce MATLAB programming concepts
  - Advised students on course projects
  - Developed homework solutions
- 24-452 Mechanical Systems Experimentation Fall 2018
  - Aided students with assignments in a laboratory setting
  - Held office hours to help students with assigned reports
  - Graded lab reports
- 24-101 Fundamentals of Mechanical Engineering Spring 2005
  - Graded homework assignments and exams
- 24-354 General Robotics Fall 2004
  - Designed robotics lab assignments to enhance lecture concepts
  - Coordinated labs for class projects

Carnegie Mellon University, Pittsburgh, PA Fall 2018 – Present

Guest Lecturer

- Delivered lectures on control systems, PID control, and LQR control for the 24-452 Mechanical System Experimentation course

Westinghouse Electric Company, Cranberry Township, PA October 2007 – Present

Principal Engineer

- Developed training class on plant computer applications for the Technical Leadership Development Program
- Delivered technical training presentations on control system theory and plant control system operation to new engineers and customers from State Nuclear Power Technology Corporation
- Trained customers at Vandellòs Nuclear Power Plant on plant computer applications

Professional Experience

Westinghouse Electric Company, Cranberry Township, PA October 2007 – Present

Principal Engineer

- Designed control systems for the AP1000™ Nuclear Steam Supply System
- Developed and patented testing and calibration programs for plant instrumentation and control systems
- Analyzed current nuclear plant operations for system stability
- Developed computational models to predict plant response to control system actions
- Performed failure modes and effects analyses for current and future designed nuclear power plants
- Calculated theoretical minimum reliability for plant instrumentation & control systems
- Calculated safety system setpoint uncertainty for nuclear power plants
- Designed plant computer systems for nuclear power plant operations
- Tested and installed upgraded plant computer systems using the Emerson Ovation® platform
- Developed application programs for plant computers systems for both pressurized water reactors and boiling water reactors

McKesson Automation, Cranberry Township, PA August 2005 – September 2007

Mechanical Design Engineer

- Modeled parts for testing and production
- Designed electro-mechanical systems for pharmacy products
- Analyzed models and test data to improve product design
- Initiated design changes to reduce cost and improve service and manufacturability
- Coordinated with in-house manufacturing to effect efficient production process
- Wrote LABView programs to test prototype systems

Patents

US 8,437,974, *Calibration Detection System and Method*, May 7, 2013

US 11,581,102, *Nuclear Control System with Neural Network*, February 14, 2023

Conferences

Pressurized Water Reactor Owners Group – Instrumentation & Control Working Group

- Accounting for Static Pressure Effects in the Loop Uncertainty Analysis, January 2018
- Development of 7300 Process Control System Software Models, January 2018
- Update from Westinghouse on how the ASDV is evaluated to operate as part of the control system setpoint study, July 2017
- Detailed Review of Control System Analysis, July 2016

Carnegie Mellon University Energy Week

- Neural Network Based Controller Tuning, 2019

Carnegie Mellon University Mechanical Engineering Department PhD Symposium

- Improving Reinforcement Learning Training using Multiple Reward Functions, 2022
- Neural Network Assisted Disturbance Rejection for Quadrotor Drones, 2020

Awards and Honors

Mechanical Engineering Outreach Star Award – Silver Level, 2022
George Westinghouse Signature Award, Business Level, 2022
MathWorks, Certified Matlab® Associate, January 2021
George Westinghouse Signature Award, Company Level, 2019
George Westinghouse Signature Award, Business Level, 2019
Professional Engineer, State of Kansas, January 2017
Professional Engineer, Commonwealth of Pennsylvania, June 2013
Carnegie Mellon University, College and University Honors, May 2005
Pi Tau Sigma Mechanical Engineering Honor Society

Service Activities

Mechanical Engineering Graduate Student Organization
Fall 2021 – Present

- Served as a mentor to PhD and Masters students
- Organized information sessions on professional engineering licensure

International Society of Automation, ISA67 Nuclear Power Plant Standards
June 2016 – Present

- Chair of ISA 67.04 Working Group
- Secretary of ISA 67 Committee
- Secretary for ISA 67.04.01-2018 Standard

National Council of Examiners for Engineering and Surveying
November 2016 – Present

- Fundamentals of Engineering Exam Development Committee Member

Invited Talks

Panelist, **Promise or Peril? AI & Your Future**
July 2023, North Park Church

Skills

Software Packages: ProEngineer, Solidworks, Matlab
Programming Languages: Python, C/C++, Matlab, Java, Visual Basic