

ROBOTICS ENGINEERING



RBE Colloquium Series

RBE Graduate Students

Friday, August 30, 2019

2:00 pm – 3:00 pm

Gateway Park 60 Prescott St. | Rm. 1002



Katie Gandomi

AIM Lab at the 2019 Hamlyn Symposium

Abstract: Medical Robotics is a diverse field with many emerging technologies and clinical procedures. The focus of the annual Hamlyn Symposium on Medical Robotics (HSMR) is to bring together expert surgeons and engineers in the field from across the globe to discuss and share their research. The WPI AIM Lab presented on various topics at this year's symposium including: Orthotics, Interstitial Thermal Ablation, MRI Compatible Surgical Robots and DVRK Simulation Environments. In this talk, a brief recap of the lab presentations and the HSMR as a whole will be presented.



Richard Hosea

Teaching by Example

Abstract: This talk covers the value of what I learned working as a documentation writer for the robotics team at MathWorks. For 14 weeks I wrote reference pages for new functions, objects, and examples for the Robotics System Toolbox in Matlab. Through writing these I found that the most important aspect of reference page are examples. This talk reviews how academia can benefit from this knowledge.



Yash Shukla

Camera Calibration for highly distorted wide-angle lenses

Abstract: Cameras are used for a multitude of tasks, right from capturing images as a form of art to imaging diagnostics for detecting afflictions. It is important to determine the optical center, the focal length, and the lens distortion parameters that collectively constitute the Camera Calibration Parameters to identify the correct shape and location of an object in the world space. Checkerboards are often used to calibrate cameras since their planar grid structure defines many natural interest points in an image. This talk will discuss the difficulties encountered while calibrating a highly distorted ultra-wide-angle lens and the measures taken to ensure accurate camera calibration.



Alexandra Valitron

Integrating Neural Networks into Sensor Systems

Abstract: Artificial intelligence design and training is a broad skill set that takes years to develop. However, it is impractical to expect every engineer to learn these techniques and integrate them in their system design. This summer I learned how to integrate a previously trained model into an existing dynamic sensor network similar to ROS. The result is a compartmentalized development chain that separates the AI expertise from the hardware engineer from the software developer for faster, more modular system development with AI.