Huimin (Hugh) He

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Education

- **Duke University** — Durham, NC
  Master of Science in Mechanical Engineering (Robotics); GPA: 3.53 — *Aug 2016 – May 2018*
- **University of Southampton** — Southampton, UK
  Study Abroad Program in Ship Science; GPA: 3.54 — *Aug 2014 – July 2015*
- **Harbin Engineering University** — Harbin, China
  Bachelor of Engineering in Marine Engineering (Control and Dynamics); GPA: 3.33 — *Aug 2011 – July 2015*

Experience

- **Teaching Assistant** — Jan 2017 - May 2017
  Duke University — *Durham, NC*
  - **Linear System and Control Instruments**: mentoring students on control theory, Simulink and ControlDesk, and Grading lab reports and final project.
- **R&D Engineer** — Aug 2015 - Jul 2016
  Harbin Engineering University — *Harbin, China*
  - **Active vibration control**: Designing active and semi-active vibration absorber and algorithms using SolidWorks, MATLAB simulation and testing using dSPACE. Charted with four patents in vibration absorber design.

Projects

- **Amazon Robotic Challenge** — Jan 2017 - Aug 2017
  - Automated training data collection, processing using Arduino and building the GUI using PyQt.
  - Implemented object classification and segmentation algorithms using TensorFlow and OpenCV.
  - assisted building integration test for robot grasping during field test on a TX-90 robotic arm and Intel RealSense cameras.
- **Energy Shaping of a Swing Using Deep Reinforcement Learning** — Nov 2017 - Apr 2018
  - Modeled the human locomotion and dynamics on a playground swing and building the simulation.
  - Implemented the cutting-edge deep reinforcement learning algorithm (TRPO) using PyTorch and hyper-tunning the algorithm. prototyped a robot with 3D printing and Arduino.
  - Used the simulation environment to initialize the controller and transfer the policy to control a real Arduino robot.
- **TSA Passenger Screening Algorithm Challenge** — Aug 2017 - Dec 2017
  - Designed an algorithm to identify potential threat through analyzing TSA screening data.
  - Developed a GUI tool to visualize the TSA passenger point cloud data using VTK and OpenCV.
  - Applying machine learning algorithms(DBSCAN) to segment the human point cloud through and optimization with 95% of accuracy with no labels.

Publication and Patent

- M. C. Aubert, A. W. Draelos, M. Draelos, Y. Feng, **H. He**, B. Keller, J. Li, B. Vincent, F. Wang, S. Wu, K. Zhou, T. Zhu, and K. Hauser. A Rapid Development Methodology for an Autonomous Warehouse Picking Robot. ICRA 2017 Warehouse Picking Automation Workshop, May 2017.

Skill Set

- **Languages**: C++, Python, MATLAB, Embedded C, Java, XML/HTML, MySQL, LaTeX
- **Softwares and Libraries**: Linux, ROS, TensorFlow, Keras, PyTorch, OpenCV, AWS
- **Prototyping** : AutoCAD, SolidWorks, 3D Printing, Arduino, RaspberryPi