Luke Shi
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EDUCATION

Northwestern University Sept 2016-current
Master of Science in Robotics GPA: 4.0/4.0

University of Pennsylvania Aug 2014-Dec 2015
Master of Science in Engineering in Materials Science

University of Illinois at Urbana-Champaign Aug 2010-May 2014
Bachelor of Science in Materials Science and Engineering

EXPERIENCE

Prof. John A. Rogers Group: University of Illinois May 2011-May 2014
Undergraduate Researcher

- Fabricated and characterized integrated liquid crystal/stretchable RF devices for skin diagnostics. Developed reproducible fabrication process for device substrate. Efforts facilitated creation of novel diagnostic imaging platform. Resulted in co-authorship on publication in Nature Communications.
- Designed, fabricated, and tested epidermal electronic devices for vitals measurement. Assisted in preliminary device design. Quantified adhesion forces of candidate encapsulant materials. End result was a multifunctional device that was robust up to 2 weeks, even in harsher environmental conditions. Resulted in co-authorship on publication in Advanced Materials.

PROJECTS

EECS 433 Final Project: Northwestern University Feb 2017-current
Graduate Student

- Partner project to implement reinforcement learning for improvements in gun shooting accuracy
- Exploring fundamentals of MDP's and policy improvement in an effort to improve existing algorithms
- Gained experience in various facets of reinforcement learning: Q-learning, SARSA

Independent Project: Northwestern University Jan 2017-current
Graduate Student

- Designing a simulator for multiple robots to test collision avoidance, path planning, and “swarm” formation
- Seeking to build real robots to experimentally validate the simulator results
- Software: ROS, RViz, Programming Languages: Python, Arduino/C

ME 495 Final Project: Northwestern University Nov 2016-Dec 2016
Team 4: Fancy Baxter

- We programmed a Baxter Research Robot to set a table for dinner, akin to fine dining arrangement
- Utilized Baxter's image processing and inverse kinematics capabilities to track, grip, and place silverware
- Hardware: Baxter Research Robot, Software: Python, OpenCV, Baxter API

SKILLS

- **Semiconductor Device Processing/Characterization**: lithography (photo, nano-imprint, soft), PVD, wet/dry etching, SEM, spectrophotometry, device characterization (I-V, IQE), DMA
- **Software/Frameworks**: AutoCAD, ROS, Git, Gazebo, Rviz, TinyOS , Linux
- **Programming**: proficient in: MATLAB and Python, familiarity with: C/C++ and nesC
- **Interests**: medical devices, medical robotics, IoT, machine learning, artificial intelligence
- **Languages**: English, Mandarin Chinese
- **Miscellaneous**: experience in: feature detection/matching, modeling dynamic systems, forward/inverse kinematics/dynamics of open chains, metric learning, SVM's, perceptron learning, familiarity with: robot control theory, wireless sensor network protocol/communication