

Luke Shi

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<https://shil1617.github.io/>

EDUCATION

Northwestern University Sept 2016- Dec 2017
Master of Science in Robotics GPA: 3.87/4.00

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 thermochromic 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-Mar 2017
Graduate Student

- Partner project to implement reinforcement learning techniques
- Exploring fundamentals of policy gradient methods to improve existing actor-critic algorithms
- Gained experience in various facets of reinforcement learning: Q-learning, actor-critic learning, contextual bandits

Independent Project: Northwestern University Jan 2017-current
Graduate Student

- Designing a simulator for a multi-robot system to test collision detection, path planning, and “swarm” formation
- Seeking to build real robots to experimentally validate the simulator results
- Software: ROS, RViz, Programming Languages: Python

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

- We programmed a Baxter Research Robot to arrange silverware for dinner, akin to fine dining
- 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, nesC, R
- **Interests:** robot learning, IoT, data mining, multi-robot systems
- **Languages:** English (fluent), Mandarin Chinese (conversant)
- **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, optimal control