

# LILLIAN CHIN

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## EDUCATION

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### Massachusetts Institute of Technology (MIT)

*B.S. in Electrical Engineering and Computer Science*  
*Minors in Mechanical Engineering, Comparative Media Studies*

**June 2017**  
*Cambridge, MA*  
*GPA: 4.9/5.0*

## WORK AND RESEARCH EXPERIENCE

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### MIT Computer Science & Artificial Intelligence Lab., Distributed Robotics Group

*Researcher with Dr. Daniela Rus*

**Sept. 2016 – present**  
*Cambridge, MA*

- Designed chiral shear auxetic pattern with living hinges in aluminum capable of creating load-bearing structures
- Will be designing a self-deploying robot that uses the auxetic material for actuating foldable rigid joints.

### Massachusetts Institute of Technology, Department of Mechanical Engineering

*Researcher with Dr. John Hart*

**Feb. 2014 – present**  
*Cambridge, MA*

- Created machine vision algorithms in C++ for dynamic photolithography system, increasing speed of tracking, detection and encapsulation by 300% with multithreading, Kalman filters and bit plane splicing.
- Performed encapsulation experiments on liver hepatocytes in photopolymers for tissue engineering applications.
- Adapted photolithographic system to a robot arm, enabling accurate micropatterning on macro-scale objects. Improved scanning system's accuracy and designed mechanical enclosures for electronic / optical systems.
- Designed and printed NFC circuits to test capabilities of photolithography system for flexible circuits
- Analyzed performance of various particle detection and tracking algorithms in simulated and actual conditions.

### Apple

*iPad Hardware Systems Integration, Electrical Engineering Intern*

**June – Aug. 2016**  
*Cupertino, CA*

- Designed schematic and PCB in Cadence for internal project board involving high-speed signals.
- Wrote TCL scripts to validate functionality of SoCs. Deployed this test suite on SMT, FATP and REL lines in China.
- Performed power validation and signal integrity measurements on low and high speed signals, including I2C and SPI.
- Wrote scripts in Lua, C++ and Python for internal eye diagram measurements & thermal experiments on battery life.

### Square

*Electrical Engineering Intern*

**June – Aug. 2015**  
*San Francisco, CA*

- Wrote C code for NFC card proximity detection that interfaced with 2 microcontrollers, an FPGA, ADC/DACs, and a voltage regulator. Key part of firmware needed to pass contactless payment certification
- Tuned NFC antennas with VNA and SMT rework skills, enabling proposal of new antenna design directions
- Wrote Python script to send HCI commands to Bluetooth chip, validating results with spectrum analyzer
- Supported EVT build in China, conducting failure analysis for SMT and FATP factory lines and providing translation
- Created preliminary schematics and PCB layout for new NFC board in Altium

### MIT Media Lab, Biomechatronics Group

*Researcher with Dr. Hugh Herr*

**Jan – May 2015**  
*Cambridge, MA*

- Created thin-wire electrodes & Matlab / ImageJ scripts to stimulate rat sciatic nerve and quantify nerve regrowth

## PROJECTS

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For pictures and more detailed information, please go to <http://lillych.in>

### 2.72 - Elements of Machine Design

Desktop lathe that maintained 50 micron precision even after being dropped. Won first place for highest accuracy

**Spring 2016**

### MIT Mobile Autonomous Systems Laboratory

Cube-stacking autonomous robot. Won first place, best software, best wiki and "most likely to be staff" award

**Jan. 2016**

### MakeMIT 2014

Guitar-playing robot that uses solenoids to strum and a rack-and-pinion setup to fret. Won first place.

**Feb. 2014**

## PUBLICATIONS

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1. Stevens, A., Oliver, R., Kirchmeyer, M., Wu, J., **Chin, L.**, Polsen E., Archer, C., Boyle, C., Garber, J., and Hart, J. (2016). Conformal robotic stereolithography. *3D Printing and Additive Manufacturing*, 3(4): 226-235.

## SKILLS AND ACTIVITIES

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**Languages** – *Fluent*: Python, Java, C/C++, L<sup>A</sup>T<sub>E</sub>X, Matlab, TCL; *Familiar*: Javascript, SQL, HTML/CSS, Bash, Chinese  
**Proficiencies** – Git, Cadence, Adobe Photoshop, Adobe Illustrator, Django, EAGLE, Altium, MasterCAM, Solidworks