

LILLIAN CHIN

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EDUCATION

Massachusetts Institute of Technology (MIT)

B.S. in Electrical Engineering & Computer Science, Minor in Mechanical Engineering, GPA:4.9/5.0

June 2017

Cambridge, MA

WORK AND RESEARCH EXPERIENCE

Square

June – Aug. 2015

Electrical Engineering Intern

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 of 300 units in China with electrical engineering, embedded software and translation skills for SMT and FATP factory lines
- Provided foundation for algorithm to automatically design tamper mesh in Altium
- Created preliminary schematics and PCB layout for new NFC board in Altium

Massachusetts Institute of Technology, Department of Mechanical Engineering

Feb. 2014 – present

Researcher with Dr. John Hart

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.

MIT Media Lab, Biomechatronics Group

Jan. – May 2015

Researcher with Dr. Hugh Herr

Cambridge, MA

- Created thin-wire electrodes and Matlab script to stimulate rat sciatic nerve and measure response
- Wrote automated particle analysis in ImageJ to measure neuron size, count and g-ratio to quantify nerve regrowth

MIT Computer Science and Artificial Intelligence Laboratory, Big Data Initiative

Sept. – Dec. 2014

Researcher with Dr. Sam Madden

Cambridge, MA

- Strengthened Django and Javascript frameworks of a system that allowed users to control data privacy and access
- Created REST API for the personal data storage system, enabling interfacing with iOS and Android sensors

Georgia Institute of Technology, Department of Mechanical Engineering

May 2011 – Aug. 2013

Researcher with Dr. Michael Leamy

Atlanta, GA

- Constructed an agent-based model in NetLogo to study collective cell movement during wound healing.
- Innovatively applied engineering principles to create model based on biological time-lapse videos of wound healing.

Emory University, Department of Pharmacology

Aug. 2011 – May 2013

Researcher with Dr. Jennifer Hurst-Kennedy

Atlanta, GA

- Conducted cell invasion and cell-migration assays to study the role of a deubiquitinating enzyme in cancer metastasis.
- Established a method for quantitative analysis of cell invasion data taken from time-lapse confocal video microscopy.

Westminster Schools

Jan. 2010 – May 2013

Researcher with Dr. Chris Harrow and Dr. Shaffiq Welji

Atlanta, GA

- Investigated locus of a conic sections foci using dynamic geometry and computer algebra software
- Analyzed behavior found by applying projective and algebraic geometry to the problem.

PUBLICATIONS

1 first-author bioengineering paper; 1 co-author mathematics paper; 3 mechanical engineering manuscripts in preparation

SKILLS AND ACTIVITIES

Laboratory – Cell culture, time-lapse video microscopy, manual & CNC machine shop experience, surface mount soldering

Languages – *Fluent:* Python, Java, C/C++, L^AT_EX, Matlab, NetLogo; *Familiar:* Javascript, SQL, HTML/CSS, PHP, Bash, Chinese

Proficiencies – Git, ImageJ, Adobe Photoshop, Adobe Illustrator, Nikon Elements, Django, Jenkins, EAGLE, Altium, MasterCAM, Solidworks