

# William Liu

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## Education

### Carnegie Mellon University

Bachelor of Science, May 2020

Major in Cognitive Science

Minors in Computer Science and Robotics

Alpha Epsilon Pi Fraternity

## Skills

### Technical:

C, Python, SML, HTML, Javascript, CSS,

Arduino, Raspberry Pi, Unity 3D

### Design:

InDesign, Photoshop, Illustrator,

SolidWorks, AutoCAD, Inventor,

Blender, Laser Cutting, 3D Printing

### Misc:

LaTeX, Gantt Charts, Chinese, Spanish

## Select Coursework \*in progress

### Technical:

Theoretical Computer Science // 15-251

Intro to Machine Learning // 10-401

Computer Systems // 15-213

\*Robot Kinematics & Dynamics // 16-384

\*Parallel Algorithms & Structs // 15-210

### Non-Technical:

Cognitive Psychology // 85-211

\*Neural Reinforcement Learning // 85-435

\*Experimental Design for Psych // 36-309

## Clubs/Activities

### Scotch'n'Soda Theatre

Stage and Production Manager

### CMU Tricking Club

Founder & President

Tricking is "an aesthetic blend of gymnastics, martial arts, and breakdancing."

### Student Advisory Board

Board Member

### Students for Urban Data Science

Student Engagement Coordinator

## Interests/Misc.

Top 100 Pokémon Player,

Filmmaking, League of Legends

Updated: May 15, 2018

## Experience

### Uber Advanced Technologies Group // Software Engineering Intern

May 2018 — August 2018, Pittsburgh, PA

Will work on flexible and robust self-driving car operating system.

### Computer Architecture Lab at Carnegie Mellon // Researcher

Dec 2016 — Present, Pittsburgh, PA

Discovered up to 12.2% energy savings from efficient DRAM memory placement.

Designing new memory allocation protocol for non-contiguous data structures in graph

algorithms. Pushing patch for Linux and other operating systems.

### Carnegie Mellon University — School of Computer Science // Teaching Assistant

Aug 2017 — Present, Pittsburgh, PA

Teaching Assistant for Principals of Computation (15-110). Lead lab and recitation sections

to give students a broad overview of computer science theory.

### The Articulab — Human Computer Interaction Institute // Research Assistant

Aug 2017 — Dec 2017, Pittsburgh, PA

Designed and prototyped the very first user model for a rapport-building virtual agent.

Wrote paper introducing modeling techniques specific to rapport.

## Projects + Awards More at [williamliu.me/portfolio.html](http://williamliu.me/portfolio.html)

### PennApps XVII: Modware // 2nd Place + Hacker's Choice, Jan 2018

Hardware prototyping platform for software-focused developers.

Created distributed hardware stack with magnetic data and power connections and server for generating APIs and data synchronization.

**2nd Place out of 300+ teams at University of Pennsylvania.**

### Facebook Global Hackathon: FB Discourse // Grand Prize, Nov 2017

Hardware-software integrated debate digitizer and organizer. Presented to the VPs of Technology of OculusVR, Instagram, Messenger, and WhatsApp.

Coordinated a fullstack webapp, hardware stack, and ML modules from Google Cloud Computing using 5 communication protocols and 8+ technologies.

**Best of 14 finalists from 11 different countries.**

### TartanHacks: ResistAR // Grand Prize + Facebook's Favorite, Feb 2017

Augmented Reality circuit visualizer and solver.

Computations based in 3D calc and matrix theory. Coordinated with Unity3D.

**Best of 150+ teams at Carnegie Mellon University.**

### NASA Centennial Challenge: Mars Ascent Vehicle // Second Place, Apr 2016

One mile apogee rocket + Autonomous Ground Support Equipment (AGSE) to secure payload from ground and prep rocket for launch. Presented to NASA engineers.

Wrote over 400 pages of documentation, passing NASA-level engineering checkpoints.

**Our payload mechanisms will be used in NASA SLS's mission to Mars.**

## Select Publication

**"What Your DRAM Power Models Are Not Telling You: Lessons from a Detailed Experimental Study"** SIGMETRICS 2018.

S Ghose, A G Yağlıkçı, R Gupta, D Lee, K Kudrolli, **W X. Liu**, H Hassan, K K. Chang, N Chatterjee, A Agrawal, M O'Connor, O Mutlu.