# **Adam** Lastowka

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## Experience

### FLORIDA TECH HEP GROUP | Research Assistant

**Fall 2021 | Melbourne, FL**

- ➔ Particle detector QC testing, design and prototyping of cylindrical GEM detector for future EIC, and software development for the Hohlmann Research group.

### UNIVERSITY OF PENNSYLVANIA | Complex Systems Group Researcher

**Summer 2014, 2017 | Philadelphia, PA**

- ➔ Worked under Dr. Danielle Bassett to develop a network-based physical model of the human musculoskeletal network. Published in PLoS Biology as 10.1371/journal.pbio.2002811.
- ➔ Used MATLAB and Python to analyze the evolution of the semantic networks in different drafts of scientific papers.

### HAVERFORD COLLEGE | VCAM Makerspace Assistant

**Fall 2017 | Haverford, PA**

- ➔ Designed 3D-printed components for the VCAM makerspace at Haverford College.
- ➔ Maintained 3D printers and tools; introduced visitors to the space.

### NEXTFAB | Fabrication Intern

**2015-2017 | Newtown Square, PA**

- ➔ Selected to be part of a group of high school students who were given weekly training on various tools in the design shop.

### OPEN CONNECTIONS | Course Facilitator

**Fall 2017 - Spring 2018 | Newtown Square, PA**

- ➔ Planned, organized, and taught courses in 3D printing and animation to a group of high school students.

## Projects

### GRAPHICS ENGINE | C++, Java, OpenGL/GLSL

- ➔ Created a real-time 3D graphics engine from the ground up in C++/OpenGL. Features included screen-space reflections, a deferred rendering pipeline, SSAO, lens flare, and more.

### QUADCOPTER | Design, Electronics, Python, Serial Communication

- ➔ Worked with a small team to create a quadcopter from scratch using a BeagleBone single-board computer as the control hub. Wrote accelerometer Kalman filter and attitude PID controller; designed aluminum frame and 3D-printed parts.

### ASSORTED PROGRAMMING PROJECTS | Java, Python, C++

- ➔ Created responsive, dynamic visuals for a flute performance at Rochester Institute of Technology; used live audio capture / Fourier analysis
- ➔ Physical simulations: Barnes-Hut n-body, rigid body collisions, ocean draining simulator, magnetic fields, etc.
- ➔ Algorithmic: Novel error diffusion techniques, fast perceptual image hashing, motion tracking, blob detection, implicit eqn. mesh construction, tessellation, etc.

## Skills

### PROGRAMMING

**Proficient:**
C++ • LaTeX • HTML/CSS
Javascript • Shell

**Experienced:**
Java • Python • OpenGL/GLSL

### TOOLS

**Software:**
Git • Autodesk Inventor • AutoCAD • various IDEs • the SciPy stack

**Hardware:**
3D Printers • CNC laser cutters
Basic woodworking / metalworking • electronics (osc., signal gen., etc.)

### MISCELLANEOUS

**Soft:**
Teaching • Academic writing
project management • visual communication

**Artistic:**
Jazz piano • illustration
graphic design • audio mixing / mastering