

Lucas S. Krippendorff

Miami, FL | 203-706-7434 | lk.krippendorff@gmail.com | [linkedin.com/in/lucas-krippendorff](https://www.linkedin.com/in/lucas-krippendorff) | U.S. & German Citizen

Education

University of Pennsylvania | Philadelphia, PA

Bachelor of Science in Electrical Engineering, GPA 3.52

August 2024 – Present

Expected Graduation, May 2028

Skills

Programming: Python (PyTorch w/ CUDA acceleration for CNNs), C/C++ (embedded systems, microcontroller control), MATLAB (intro), Git/GitHub

Hardware: Microcontrollers (Arduino, Raspberry Pi), motor control (stepper/servo systems), PCB design (KiCad), 3D printing & mechanical prototyping

Software: SolidWorks, Onshape, Fusion 360, KiCad, Meshcat, PyQt6, Visual Studio Code, Microsoft Office Suite

Professional Organizations: UPenn Aerial Robotics Team (2024–25), UPenn Mars Rover Club (2025 – Present)

Communication: Technical documentation, reports, and presentations

Languages: English (native), Japanese (beginner)

Other: Ableton Live, Factorio

Experience

3D Chimera | Miami, FL

June – July 2025

Engineering Intern

3D printing solutions company and official Bambu Lab reseller, providing prototyping, product development, and R&D services

- Engineered a storage system using conventional materials and integrated custom 3D-printed components where uniquely required, reducing cost and complexity
- Repaired and calibrated Bambu Lab X1E and H2D printers for clients, restoring functionality after shipping, handling, and operational issues
- Assisted in 3D-printing and testing prototype products with specific material and infill requirements, evaluating properties such as tensile and shear strength, and sealing performance

Projects

Six-Degree-of-Freedom Robotic Arm (Personal Project)

May - August 2025

Designed and built a 3D-printed robotic arm to explore kinematics, actuation, and multi-axis motion control. (Individual project)

- Designed and fabricated custom **28:1 cycloidal drives** and **5:1 planetary gearboxes**, incorporating built-in ball bearings with custom spacers and lubrication, all 3D-printed and integrated with NEMA-17 stepper motors
- Programmed an inverse kinematics solver and trajectory planner in Python using Robotics Toolbox, generating time-based joint commands and transmitting step pulses to motors via Arduino firmware in C++
- Developed a web-based interface (JavaScript/HTML/CSS) with Meshcat 3D visualization to set start/end positions, cycle through saved paths, and commit movements by sending instructions to the arm

Cat-Dog Image Classifier AI (Final Project, UPenn ENGR 1050)

December 2024

Final project for an introductory engineering course; pursued convolutional neural networks (CNNs) out of personal interest beyond course content. (Individual project)

- Preprocessed **24,000 labeled images** (12k cats, 12k dogs) with resizing, normalization, and augmentation to create balanced train/test datasets.
- Designed and trained a convolutional neural network (CNN) in PyTorch using GPU acceleration (CUDA backend), achieving **~93% test accuracy** on 24,000 labeled images. Implemented preprocessing (resizing, normalization, augmentation) and evaluated model generalization across datasets.

Relevant Coursework

ESE 3500 – Embedded Systems Lab (in progress): Design and development of embedded systems through microcontroller architectures, hardware-firmware integration, and mechanical prototyping.

ESE 3700 – Digital Circuit Design (in progress): Modeling and optimization of digital gates, storage, and interconnect for energy, delay, and area.