HOWARD ZHU

✉ mail@howard-zhu.com | ⓖgithub.com/Howard-Z | 🌐 howard-zhu.com | 🔗 linkedin.com/in/howard-zhu21/

Atlanta, GA | (909) 234-8237

EDUCATION

Georgia Institute of Technology   **Atlanta, GA**

Master of Science, Computer Science   *Expected December 2026*
GPA: 4.0/4.0
Notable Courses: Information Security, Advanced Networking, Advanced Operating Systems, Binary Exploitation

University of California, Los Angeles (UCLA)   **Los Angeles, CA**

Bachelor of Science, Computer Science   *June 2025*
GPA: 3.74/4.0

TECHNICAL SKILLS AND CERTIFICATIONS

- **Languages**: Python, C++, JavaScript/TypeScript, SQL(PostgreSQL, MySQL), NoSQL, Bash, x86 Assembly
- **Tools**:, Git (Gitlab, Github), VS Code, Docker, Kubernetes, Google Cloud Platform, Unix/Linux, PowerShell
- **Frameworks:** Node.js, React, Next.js, Django, Flask, FastAPI, PyTorch, TensorFlow, scikit-learn
- **Skills**: Unix, CI/CD, TCP/IP, DHCP, REST APIs, DNS, VLANS, Embedded Devices, Operating Systems
- **Certifications**: CompTIA A+ (IT troubleshooting, peripherals, operating systems, computer hardware)

PROFESSIONAL EXPERIENCE

Internet Research Laboratory, UCLA & The University of Memphis   **Los Angeles, CA**
Undergraduate Researcher   *July 2023 – June 2025*
- Developed an application to securely transfer medical data using the Named Data Networking (NDN) protocol.
- Devised rigorous testing software to ensure optimal and correct operation using C++ and shell scripts.
- Employed attribute-based encryption to secure data contents instead of the data container.

Semel Institute for Neuroscience and Human Behavior, UCLA   **Los Angeles, CA**
Information Systems   *August 2024 – June 2025*
- Completed computer imaging, configured network deployments, and administered computer repair for end users
- Resolved issues revolving around peripheral configuration, hardware inquiries, and software usage.
- Performed routine software updates and compliance checks in accordance with HIPPA and security policies in a hospital

CS97, UCLA   **Los Angeles, CA**
Teaching Assistant   *June 2024 – July 2024*
- Taught students machine learning in Python through 8 Colab Notebooks and 4 theory and programming assignments.
- Supervised students through homework and projects involving Pandas, Scikit-Learn, and PyTorch.
- Led highly rated daily discussion sections with cohorts of 12 students for 3 hours with added office hours.

Structures-Computer Interaction Laboratory, UCLA   **Los Angeles, CA**
Undergraduate Researcher   *January 2023 – June 2024*
- Directed software development in a team of 4, for a robotic platform for autonomous precision agriculture applications.
- Integrated depth camera systems for data collection and autonomous navigation through fields.
- Designed control system and software for facilitating movement and long-distance communication over LoRa.

PROJECTS

Home Lab | Docker, pfSense, Unraid
- Configured pfSense with **VLANs**, **DNS**, and **VPN** for secure service exposure through **Cloudflare**.
- Deployed and managed 16+ **Docker** containers and 2 **VMs** with redundant storage and power via **Unraid**.
- Administered **Gitea**, **web servers**, and full-stack applications with secure remote connections and access controls.

Media Gestures | Python (Pytorch)
- Trained a **neural network** to learn a set of hand gestures to control computer media (play, pause, skip, etc.).
- Collected and annotated over 30 pieces of video data for training, achieving over 80% accuracy.

Bruin SMV CAN | C++, Arduino, PostgreSQL, MQTT, Django
- Wrote essential code for **CAN bus** communication using **Teensy microcontrollers**. Published in Arduino's library registry.
- Enabled communication between 11 nodes using 30 signals over a 500 mbps link.
- Built self-hosted full-stack app for data collection, analysis, and real-time monitoring using **Django, PostgreSQL,** and **MQTT**.

Bruin To Go | Node.js, React, Google Firebase, HTML
- Developed a **full-stack** web app enabling users to put up a request for rewards and others may accept to fulfill those requests.
- Connected front and back ends using **REST APIs** from Google Firebase and **React** Requests.
- Implemented email and password onboarding with Firebase authentication for logins.