

Xinhong Zhu

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EDUCATION

Carnegie Mellon University

Summer Session: 15-122 Principles of Imperative Computation; 21-127 Concepts of Mathematics

Pittsburgh, PA

Summer 2026

Lowell High School

High School Diploma, In Progress; GPA: 4.0/4.0

San Francisco, CA

Aug. 2023 – Present

- Relevant Coursework: AP Computer Science A, Calculus, AP Physics C, Linear Algebra.

EXPERIENCE

Backend Engineer Intern

May 2024 – Dec. 2024

Meetomate.com

Remote

- Built the production **Python/Django** backend, using **MongoDB** for application data, **REST APIs** for client access, **Stripe**/third-party integrations, and automated tests to reliably handle user accounts, content, subscriptions, and payments.
- Implemented **ML-powered recommendation and moderation** features and integrated LLMs through the **OpenAI API** to help users discover relevant content, screen unsafe posts, and draft posts.

Cybersecurity Engineer / Vulnerability Researcher

[DATES]

Squid Proxy Lovers CTF Team

Remote

- Built a security benchmark for optimization problems with a **Python/C++** backend and **Docker** sandboxes, giving multi-agent systems a consistent environment to repeatedly test, score, and improve candidate solutions.
- Exposed benchmark runs through **REST APIs** and **MCP** tools and built a **React/TypeScript** frontend, allowing LLM agents and researchers to launch jobs, inspect results, and manage experiments.
- Built a concurrent multi-session reverse-engineering system in **Python** with **Docker** and **IDA** integration for LLM agents to analyze code in parallel; the system discovered a zero-day vulnerability in Chromium.

Programmer, CAD Designer

June 2025 – Present

FIRST Robotics (10221)

San Francisco, CA

- Integrated an **OpenCV** vision and **AprilTag** pose-estimation pipeline in **Java** to estimate field position from camera observations, providing positional awareness for autonomous driving, auto-aiming, and driver-assist alignment.
- Combined camera-derived pose with onboard sensor data to correct drivetrain heading and target alignment, giving autonomous routines more reliable navigation and reducing manual steering.
- Programmed **Java** motor and subsystem control with **motion-profiled** setpoints, coordinating drivetrain and mechanisms for smoother, faster, and more accurate hardware movement.

PROJECTS

3D Printer Management Software | TypeScript, React Native, MQTT, Python, Go, YOLO

[DATE]

- Implemented Bambu Lab device communication in **TypeScript** over encrypted **MQTT** and the proprietary protocol, exposing secure low-level programmatic control of printer hardware.
- Built a **React Native** Android frontend and implemented controls previously limited to higher-end models, giving lower-tier printers the same advanced functions through an easier-to-use GUI.
- Added **Python computer vision** with a custom-trained **YOLO** failure detector and a **Go** G-code renderer with print-head prediction, helping users catch failed prints and inspect active jobs in 3D.

Akari Voice | PyTorch, LLMs, Text-to-Speech, Streaming Inference

[DATE]

- Reduced time-to-first-word for a state-of-the-art text-to-speech model from **4.0s to 0.3s (13.3x)**, making real-time assistant responses feel immediate by adding streaming generation and optimizing **PyTorch** inference without retraining or reducing voice quality.

Windows Security Toolkit | Python, C++, Windows, Active Directory, MCP

[DATE]

- Built **Python/C++** security tools that expose low-level Windows components, including kernel data and **Active Directory**, through simple programmatic interfaces so users and agents can audit systems without writing native Windows code.
- Built an autonomous security agent using the toolkit, **MCP**, and a database of **600+ vulnerabilities** and fixes to investigate malware and misconfigurations; it outperformed **90% of competitors** in the Air Force Association's national CyberPatriot cyber defense competition.

TECHNICAL SKILLS

Languages: Python, Go, Java, C/C++, JavaScript, TypeScript, HTML/CSS

Frameworks & Libraries: Django, React, React Native, OpenCV, PyTorch

Developer Tools & Platforms: REST APIs, MongoDB, Docker, Git/GitHub, Claude, Codex