# Edmond Wong

**Software Engineer**

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https://github.com/Edmond120


## TECHNICAL SKILLS

**Programming Languages:** Rust, C, C++, Python, Elixir, Java, Javascript, Prolog, Lisp, SQL
**Frameworks:** Node.js, Express.js, Flask, Tailwind, Phoenix Liveview, Tokio + Axum
**Database Management:** PostgresSQL, SQLite, MySQL, MongoDB
**Software Technologies**: Git/GitHub, Linux System Administration, Linux Automation, Docker, Ansible, Embedded Systems
**Others**: 3D printing, CNC milling, CAD/CAM, Design for manufacturing, Technical drawing, Electronics, STM32, Arduino

## TECHNICAL PROJECTS

**CPU Design and Construction** | *Technologies: C/C++, Arduino, Electrical test equipment, Integrated circuits*

- Built a fully functional custom CPU using discrete transistors and basic integrated circuits, achieving a clock speed of ~100kHz with 256 bytes of memory.
- Developed an Arduino-based interface for program uploads and integrated nixie tubes for output display.
- Diagnosed and resolved complex hardware issues by systematically isolating modules, performing instrumentation, and conducting thorough testing.
- Gained hands-on expertise in computer architecture, low-level systems, and hardware debugging.

**CPU Emulator in Python** | *Technologies: Python*

- Developed a Python-based CPU emulator capable of executing a simplified machine code instruction set.
- Implemented memory-mapped I/O to enable graphical output, utilizing Python's Turtle graphics to render images.

**Discord Bot** | *Technologies: JavaScript, Node.js*

- Created a chatbot that uses discord messages as a data store.
- Users can use the bot to remember messages to query later, mainly used to help D&D players remember things.
- Events can be tracked with animated timers.
- The bot can parse certain messages into structured data to present them as pretty printed tables for users.

**Server Rack Deployment** | *Technologies: Python, Ansible, Docker, Linux*

- Designed and deployed a six-server system for self-hosting various services such as: Git, Email, Automated backups, Distributed Compilation, Samba (Windows network file system), Linux package mirrors (Gentoo), Chatbots.
- Automated server provisioning, configuration, and maintenance using Ansible, ensuring consistency, reduced manual overhead, and enforced a single source of truth.
- Implemented containerized applications with Docker, improving scalability and reproducibility.
- Configured Linux-based networking, including firewall rules, Dynamic DNS, and VPN setup for secure remote access.
- Developed expertise in system administration, infrastructure as code (IaC), and cloud-native practices.

**CNC Milling Projects** | *Technologies: Python, Gcode, CAD, CAM*

- Designed and manufactured video game inspired trinkets using CNC milling as an exploration of precision machining.
- Adapted 3D models for manufacturability using FreeCAD, optimizing designs for efficient production.
- Extended CAM functionality with Python scripting, enhancing automation and efficiency in the milling process.
- Streamlined post-processing workflows by implementing automated polishing techniques directly on the mill.
- Conducted cost and market analysis to evaluate feasibility and profitability, exploring small-scale manufacturing opportunities.

## Education

**Bachelor of Science, Brooklyn College, CUNY** **Graduation: June 2023**
**Major: Computer Science** **Major GPA: 3.8**

- **Relevant Coursework**: Principles of Robotics, Discrete Structures, Data Structures, Analysis of Algorithms, Database Systems, Object-oriented Programming, Operating Systems, Web Development and Design, Theoretical Comp. Sci.
- **Graph Theory Research:** Under the supervision of a mentor, I built various utilities in C and Python to profile and count graphs for research. In addition I also wrote several shell scripts for distributed computing.

## Work experience

**Hasc center** **2021 to present**

- Acted as a caretaker for children with autism.
- Used graphics programming and basic electronics to provide fun science labs and activities.