Edward Wibowo

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EDUCATION

Brown University   August 2022 – May 2026
Bachelor of Science in Computer Science and Mathematics   *Providence, RI*
- **GPA**: 4.0/4.0
- **Relevant Courses**: Computer Systems, Computer Networks, Compilers, Applied Cryptography, Deep Learning, Theory of Computation, Statistical Inference, Honors Linear Algebra, Abstract Algebra, Graph Theory, Multivariable Calculus
- **Teaching Assistant**: Computing Foundations (Fall 2023, ∼25 students), Computer Systems (Spring 2024, ∼170 students), Computer Networks (Head TA, Fall 2024)

EXPERIENCE

D. E. Shaw & Co.   June 2024 – August 2024
Systems Engineer Intern   *New York, NY*

Brown University Computer Science Department   April 2023 – Present
Systems Programmer   *Providence, RI*
- Managed **600+** distributed systems and department services using **root privileges** as part of Brown CS technical staff.
- Resolved security vulnerabilities related to account management software and **OpenVPN** with **13,000+** certificates.
- Implemented hardware authentication to secure SSH connection to administrative machine using **YubiKey PIV** module.
- Address technical inquiries from **1,000+** faculty and students using **Linux** and **Secure Shell** (SSH) expertise.

Serre Lab   June 2023 – January 2024
Development Intern   *Providence, RI*
- Developed full stack application to gather human object recognition data using **React**, **PostgreSQL**, and **Python**.
- Designed and created **Go** server backend with secure user authentication using JWT, bcrypt hashing, and HTTP cookies.
- Integrated human data with **1,300,000+** images from **ImageNet** to train **AI algorithm** to become more human-like.
- Scaled deployment by fully containerizing application with **Docker** on **Google Cloud Tensor Processing Units** (TPUs).

PROJECTS

Reverse Proxy (voltproxy) | *Go, Docker*   July 2023 – Present
- Developed **YAML**-configurable reverse proxy to serve multiple services with middleware support using **Go**.
- Created custom **load balancing** strategy with concurrent health checks, reducing memory consumption by **3x**.
- Implemented tight integration with **Docker** to dynamically route traffic to containers by querying **Docker Daemon**.
- Followed test-driven development (**TDD**) and created integration testing API to achieve **100%** test coverage.

Rust Game Engine (ctrait) | *Rust, SDL2, nalgebra*   July 2021 – August 2021
- Developed **Rust** game engine with original trait-based entity-component-system (**ECS**) architecture using **SDL2**.
- Ensured **thread-safety** between systems and components by utilizing **atomic reference counting** and mutexes.
- Wrote custom texture resource manager to facilitate **multithreaded** texture loading and unloading using Rust lifetimes.
- Achieved **100%** documentation coverage using **Rustdoc** along with a suite of examples.

Competitive Programming Training Platform (UFDS Training) | *TypeScript, Next.js, Firebase*   June 2021 – Present
- Developed competitive programming educational web platform with **Next.js** and **Firebase** to support **1000+** users.
- Scaled platform to support active user base by optimizing database queries and utilizing **server-side rendering**.
- Implemented user authorization to securely store user data and progress using **Firebase Authentication**.
- Built content system with embedded programming problems using **MDX JS** to host **200+** interactive articles.

AWARDS

Wolfram Award, Hack@Brown 2023
8th Place, Bevy Game Jam #1 2022
Best Pre-University Hack, Hack&Roll Hackathon 2021
2nd Runner Up, AWS Build On Hackathon 2020
Bronze Medalist, Singapore National Olympiad in Informatics 2020

SKILLS

Programming Languages: Python, JavaScript, TypeScript, C, C++, C#, Go, Rust, Java, PHP, Racket, SQL, OCaml
Frameworks: React.js, Next.js, Node.js, Express.js, Flask, TailwindCSS, Catch2, Xlib, SDL2
Technologies: Git, Docker, Linux, MongoDB, Firebase, PostgreSQL, Unity, Unreal Engine, Traefik, NGINX, Bash