

Ved Kothavade

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Education

University of Maryland, College Park
Bachelor of Science in Computer Science

Expected May 2026
GPA: 4.0

Experience

Software Engineering Intern, Bloomberg L.P. – South Brunswick, NJ Jun 2023 – Aug 2023

- Implemented a web application to streamline Bloomberg server turnaround configuration management
- Used Typescript/React for the frontend, and Python/Flask for the backend, led effort to migrate internal templates to modern build tooling and frameworks which improved developer experience and reduced frontend build times by 99%
- Integrated with internal APIs to manage configuration data, implement SSO, and deploy configuration to servers
- Deployed SaltStack orchestration to 60,000 production servers, automating a critical redundant task faced by operators

Software Engineering Intern, BGC Group – New York City, NY Jul 2022 – Feb 2023

- Developed a React frontend as a simple, unified interface for managing configurations distributed across multiple servers
- Created a Node/ExpressJS backend which used PostgreSQL as data source of truth, and exported to servers with SCP
- Empowered non-technical staff to manage configuration, reducing the burden on the engineering team
- Invited to continue working on project as a part-time intern during the school year, after the summer ended

Projects

CodeSense Aug 2023 – Sep 2023

- A language agnostic code search engine which allows users to search for functions by their signatures and names
- Eg. searching for `String, int -> int` will find all functions with `String` and `int` parameters, and an `int` return type
- Code can be uploaded from disk, the web, or chosen from preselected popular projects, and is parsed in milliseconds
- Creates an AST, indexes functions with custom lisp queries that capture function signatures, and filters by user input

Computer Vision: Gesture Recognition, Self-Driving Sep 2022 – Jun 2023

- Independently learned OpenCV, created projects, presented to Board of Education as a foundation for a new course
- Projects included hand detection and the translation of gestures into computer actions such as clicking and scrolling
- Initially lights were used, then a Machine Learning model was trained to detect hands in real time with just a webcam
- Detected roads live from dashcam footage, which was used to operate a self-driving car in a high-fidelity simulation

LectureAI Dec 2022 – Jan 2023

- Full-stack React/Python web application which empowers students to study lectures more efficiently
- Students upload lecture videos, which are processed and analyzed to generate captions, a transcript, and a summary
- Captions are generated with FFMPEG and OpenAI's Whisper speech-to-text model running on-device with Pytorch
- The GPT-3.5 API is used to generate a summary, this metadata, along with user notes, are stored in SQLite

Personal Self Hosting Jan 2021 – Present

- Manage sensitive services such as websites, password managers, mesh WireGuard VPNs, and local home automation
- Uses Docker to containerize services, Nginx and Caddy to reverse proxy, and Nix for declarative configuration
- Hosted on local Debian & Fedora servers, as well as Ubuntu on Oracle Cloud and GCP
- Learned about Linux administration, networking, and security, and am exploring scaling with Kubernetes

Chip-8 Emulator Aug 2023 – Present

- An accurate, fast Chip-8 (mid-70's PC game) emulator written in Rust, with a native GUI using SDL2
- Learned the architecture of a CPU, how to implement registers, memory, and instructions in software
- Games such as Pong, Tetris, and Space Invaders are fully playable, with sound and keyboard input

Skills and Interests

- **Languages:** Python, Rust, C, C++, Java, Kotlin (Android), C# (Unity), SQL, Bash
- **Web Development:** JavaScript, TypeScript, HTML, CSS, Node.js, Express, React, Vue, Tailwind, FastAPI, Flask
- **Linux Server Management:** Linux, Docker, Nginx, Caddy, SaltStack, Nix
- **Cloud/Serverless Computing:** OCI, AWS, GCP, Digital Ocean, Cloudflare, Vercel, PlanetScale, Firebase
- **Interests:** Robotics, Ancient History, Video Games, High Fantasy