

# CHIRAYU RAI

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## Work Experience

### Degirum, Santa Clara, CA

August 2024 - Present

#### Software Engineer

- Designed, prototyped, implemented notification service using MQTT, Golang, Apprise, and Amazon SQS able to handle over 10,000 requests per second
- Created a drag and drop platform using HTML/CSS and Javascript that allows users to generate full applications with Degirum's Python AI SDK, and created a containerized docker environment that users can run these apps in.
- Created WebRTC based streaming platform that allows for multiple cameras to stream video with various inference results being drawn on top in real time, while properly handling for different model types and achieving 30 fps for 10 cameras in the system.
- Created tests for Degirum's Javascript AI SDK using Jest, including fully mocked websockets and canvas
- Created multiple CI/CD actions on Github to generate documentation, perform releases, and run tests
- Implementing PYSDK in open source app, Frigate, enabling one detector to support multiple hardware accelerators, as well as model architectures

### Degirum, Santa Clara, CA

June 2023 - August 2023

#### Fullstack Web Development Intern

- Developed a no-code platform using React.js, enabling users to easily configure and deploy AI powered applications based on their requirements.
- Engineered HTTP/RESTful API endpoints with Flask, integrating asynchronous tasks via Celery for efficient model execution based on sanitized inputs from the no-code frontend.
- Implemented automated testing with Playwright, achieving over 95% coverage, ensuring robust feature validation.
- Configured Caddy as a reverse proxy to deploy a Dockerized frontend application, enhancing website speed.

### Clip Automation, Palo Alto, CA

July 2021 - August 2021

#### Backend Engineering Intern

- Developed the foundational backend for a live streaming service, facilitating real-time factory floor monitoring.
- Integrated Flask with Kafka and Nginx to establish secure, web-accessible streaming channels.
- Optimized streaming performance on limited hardware, elevating frame rates from boosting fps by over 1200%.
- Employed Agile and Scrum methodologies throughout the development process for iterative improvements and efficient project management.

## Projects

### Pennywise | React Native, Flask, SQL, tailwind

- Budgeting app that implements Plaid's API to ensure secure control over user's credit card information
- Created 5NF normalized SQL database to ensure best database query performance
- Ensure proper REST format API was created to interact with database in secure manner
- Added authentication to application to ensure only logged in users can access material specific to them

### CPP NSU website and editor | MERN stack, GraphQL, TailwindCSS

- Engineered a dynamic website with an integrated content editor for the CPP Nikkei Student Union
- Leveraged MongoDB for improved data retrieval speeds and implemented JWT for secure user authentication and data management

## Skills

**Programming Languages:** Python, Javascript, SQL, Java, C/C++, HTML/CSS

**Technologies/Libraries:** Vim, React.js, Node.js, REST APIs, GraphQL, tailwindCSS, numpy, Matplotlib

**Tools:** Linux, Git, Samba, SSH, FTP, AWS, MongoDB, Docker, HPC, TCP/IP

**Natural Languages:** English, Chinese, Hindi (speaking, reading, writing)

## Education

### California State Polytechnic University - Pomona

Graduated: May 2024

Bachelors of Computer Science

**Relevant courses:** Data structures and Algorithms, Machine Learning, Object Oriented, Software Engineering, Parallel Computing, Databases, Computer Networks, C/C++, Python