Jugal Chitkara

519-386-9613 | JChitkar@uwaterloo.ca | linkedin.com/in/JugalChitkara | JugalC.com

EDUCATION

University of Waterloo   Waterloo, Canada
Bachelor of Applied Science in Computer Engineering   *Sept. 2019 – Apr. 2024*
Relevant courses: Operating Systems (C), Concurrent Programming (C), Computer Architecture (Verilog), Computer Networks, Database Systems (SQL), Numerical Methods, Economics (R)

EXPERIENCE

FPGA Engineering Intern - Microsemi Product Portfolio   Sept. 2023 – Dec. 2023
Microchip   *Toronto, Canada*
- Joining the Advanced Development team of Microchip's FPGA Division for the Fall 2023 Term.
- Working as part of a core team that develops future FPGA fabric architectures.

Software Developer Intern - Platform Engineering   Jan. 2023 – Apr. 2023
BioRender   *Toronto, Canada*
- Wrote **AWS CDK** infrastructure as code to platform and integrate new AI solutions in production environment.
- Designed a file validation system that analyzed raw file binary to ensure user uploads match expected filetype.
- Developed **AWS Lambda** systems in **JavaScript**, **Go**, and **Python** and executed performance and cost analysis.

Software Developer Intern - Client Integration   Jan. 2022 – Apr. 2022
Arctic Wolf Networks   *Waterloo, Canada*
- Optimized manual multi-step process by designing **AWS Step Function** workflows and **AWS Lambda** functions resulting in a one-click solution for CS team and simplified client onboarding.
- Implemented a **Go Backend** Logging system with positive and negative logging along with comprehensive documentation to greatly decrease debugging time and increase development efficiency.

Software Engineer Intern - Product Engineering   Apr. 2021 – Aug. 2021
Cachelan   *Toronto, Canada*
- Engineered a machine learning classifier to automate site snow covered classification with **Scikit Learn**.
- **Eliminated a reoccurring 20 hours** of manual data entry by writing Python scripts.
- Developed a system in a **LAMP Stack** app that parsed and visualized metrics for a client's solar farm and integrated MailGun API to automate email reporting to clients.

Full Stack Developer Intern - Internal Tools   Sept. 2020 – Dec. 2020
Superheat   *Kincardine, Canada*
- Developed a data manipulation system for data recovery from remote hardware resulting in a **90% decrease** in project turnover time using **NodeJS** and **Redis**.
- Developed full stack feature that implemented a **YouTube-like functionality** to the app to consolidate employee training and provide ease of access. Feature implemented **video upload, deletion, editing, and tagging**.

PROJECTS

Autonomous Vehicle Planning Algorithm | *Python, ROS, CARLA*   May 2023 – Present
- Working on the **Connected and Automated Vehicles** Team for University of Waterloo Alternative Fuels Team.
- R&D and Implementation of a **Hybrid A-Star Local Planning Algorithm** and **FSM-based Behavioural Planner** to allow ego vehicle to path through traffic, avoid collision, and obey the traffic laws.

Pigeon | *NextJS, Typescript, Microsoft Azure, PineconeDB, OpenAI*   May 2023 – Present
- An Interactive Data Aggregator and Explorer focused on the domain of Open Access City Data.
- Developed a full-stack web application to allow users to communicate via voice or test with a conversational chat bot to explore and utilize data from their municipality.

TECHNICAL SKILLS

Languages: Go, TypeScript, JavaScript, Rust, C, C++, Python, PHP, Verilog, HTML/CSS, Bash, R, MATLAB
Frameworks: NextJS, React, NodeJS, Actix-Web, Scikit Learn, AWS CDK
Tools: AWS, Linux, Docker, Git, Postman, GitHub Actions, NeoVim