Pearl Natalia

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Education

University of Waterloo Sept 2023 - Apr 2028
Bachelor of Software Engineering (Honours), Co-op *Waterloo, ON*
- **Involvement:** WATonomous (Self-Driving Car Design Team), Women in Engineering (Sponsorship Director)
- **Coursework:** Data Structures and Object Oriented Programming (C++), Programming Principles (C),
  Compiler Design (C++), Computer Architecture (RISC-V), Digital Circuits (VHDL)

Technical Skills

Languages: Python, SQL (PostgreSQL), Java, C, C#, C++, JavaScript/TypeScript, HTML/CSS
Tools: AWS, Google Cloud, Docker, Git, Render, Jenkins, Neo4j, Unix, Figma, Trino, MongoDB, Azure Data Studio, Grafana
Frameworks: React, Flask, Node.js, Django, Bootstrap, Spring Boot, ROS
ML Libraries: NumPy, Pandas, TensorFlow, OpenCV, Matplotlib, Scikit-Learn, Keras, Transformers, PyTorch

Experience

Software Engineering Intern Jan 2025 – Present
PointClickCare *Toronto, ON*
- Developed a Spring Boot tool to convert SQL queries to Trino format via syntax trees, enabling **scalable** federated querying
- Built a **Grafana** dashboard with **Docker** to visualize **Trino** pipeline metrics, generating **100k datapoints** for **stress testing**
- Collaboratively optimized batch sizes to reduce latency in migrating **millions** of health records across **distributed databases**
- Documented iterative progress in **Confluence** for all projects collaborated on in **Sprints**, following **Agile methodologies**

Machine Learning Engineer Sept 2024 – Present
Mimrr *New York City, NY (remote)*
- Developed **agents for enterprise clients** to automate meeting planning/scheduling and legacy code updates using **Neo4j**
- Created a **C# chatbot** and implemented persistent memory using **context-free grammar** to extract and store user data
- Improved **LLaMA's text generation** by integrating Outlines for more structured and desired chatbot outputs

Web Developer Intern May 2024 – Sept 2024
Generis Global Partners *Toronto, ON*
- Automated data cleansing via a full-stack web app (CLIP embeddings, web scraping) hosted on **AWS**, saving **20 hours/week**
- Rebuilt 15 websites to **increase traffic and SEO by 35%** using **Google Analytics** and marketing team mockups
- Built a Chrome extension to parse emails via **Flask** for updated website content, **accelerating development time by 73%**

Projects

Siri Intelligence | *SQLite, Whisper, Gemini Flash, Spotify API, PlayAI API, Core Location*
- Created an agentic MacBook voice assistant to control system settings and calendar events, play music, write emails and more
- Built **chain-of-thought reasoning with Gemini** to convert user requests into executable AppleScript commands
- Automated iMessage replies via few-shot prompting and tracked high-frequency phrases using **SQLite** to replicate user's style

AI Wearable for SOS (Hackthe6ix) | *React, Flask, Auth0, MongoDB, Gemini Flash, Raspberry Pi, Hume AI, Mapbox*
- Led the hardware integration of a SOS device to capture video and audio recording with a **Raspberry Pi** and Flask
- Generated **contextual summaries of video frames** via **Gemini Flash and Hume AI APIs**, highlighting critical threats
- Integrated real-time emergency updates on a **React web app** with **MongoDB** and **Auth0** for account login management
- Developed a **CNN-based audio classification model** with spectrograms using TensorFlow to classify violent audio clips

Android Budgeting App | *Java, XML, Android Studio, Figma*
- Developed a **full-stack Android budgeting App** in Android Studio, published on Google Play
- Built a responsive and user-friendly interface with **XML and Android UI/UX design principles**, improving engagement
- Programmed several budgeting tools with **Java** to increase user savings while shopping

AI-Powered Dash Cam | *OpenCV, Numpy, HERE Maps, Pandas, Scikit-Learn, React, SQLite, Roboflow*
- Developed **low-latency geolocation algorithms** to detect vehicle speed/turns, road violations and speed cameras
- Implemented real-time traffic light and road sign detection from live dashcam footage using YOLOv8, Flask and FFmpeg
- Improved **CNN model** accuracy on low-quality frames via relative positioning, color masking and Hough transforms