# Balaji Leninrajan

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# Education

**University of Waterloo**                                                                                 **2023 - Present**
Bachelor of Software Engineering                                                                  Waterloo, ON, Canada
**Coursework:**        FPGA design, Data Structures, Databases, Compilers, Formal verification, Computer Architecture

# Technical Skills

**Languages:** Python, C, C++, Go, Dart, Ruby, Rust, Assembly, Scala, JavaScript, TypeScript, SQL, Bash
**Technologies:** Rails, React, React Native, Next, Flask, GraphQL, gRPC, Tailwind, Nginx, Envoy, Linux
Terraform, Git, AWS, RaspberryPi, PyTorch, TensorFlow, Pandas, Kubernetes

# Experience

**Shopify** │ Production Engineering Intern │ Edge Infrastructure          *September 2025 - December 2025*
- Deployed **Terraform-based Cloudflare WAF rules** to safeguard service migrations, **achieving 100% monitoring coverage** (up from 96.4%) and ensuring zero-downtime transitions across multiple critical services
- Accelerated **incident resolution** by utilizing **Prometheus** for metrics analysis and documenting recovery procedures in new operational playbooks
- Extended Shopify's Cloudflare **Ruby gem** to query custom hostnames and metadata
- Supported migration from **Nginx** to **Envoy**, including porting **Lua** scripts to **Go**, to improve edge routing

**Shopify** │ Software Engineering Intern │ Communications Platform Team          *January 2025 - April 2025*
- Contributed to a high-scale communications platform using **React** and **Rails**, orchestrating **4M+ monthly** emails and push notifications across multiple Shopify services and teams
- Implemented an **approval workflow** system - PRs for emails - that empowers users in marketing automation to consistently send high quality emails, resulting in an **80% reduction** in faulty campaigns due to human error
- Designed a **polymorphic Rails concern** for approval workflows, **abstracting shared logic** across multiple models, **reducing duplicate code** and **improving code maintainability**
- Optimized error monitoring by implementing intelligent **Bugsnag** filtering and categorization, reducing non-actionable alerts by 70% and **improving incident response time**

**YTY Group** │ ERP/Web Development Intern          *May 2024 - August 2024*
- Engineered an employee attendance prediction system using **Tensorflow** and **Pandas** for data preprocessing, improving HR planning capabilities and reducing administrative workload
- Created a **Flutter**-based expense claims **mobile app** with offline functionality and persistent login, reducing submission time and improving accessibility

**Waterloo Aerial Robotics Group** │ Autonomy Lead          *January 2024 - Present*
- Led a **team of 10+ software developers** that contributed to **back-to-back victories at AEAC** 2024 and 2025
- Increased search area coverage efficiency by developing a **multi-drone pathing system** in Python with **peer-to-peer networking**, enabling **parallel operations** through continuous position sharing and collaborative area partitioning
- Improved **code reliability and team productivity** by establishing robust **quality control processes** including pytest-based **CI/CD pipelines** and systematic **code reviews**

# Projects

**Maram** │ *Rust, Git, Zellij*
- Built a **Rust** CLI that automates **git worktree** management for parallel feature experimentation
- Integrates **Zellij** to instantly provision isolated terminal workspaces for each branch variant
- Implements logic to **diff** and **cherry-pick** changes across worktrees without manual git operations

**Linguini** │ *TypeScript, React, Next.js, tRPC, Tailwind, PostgreSQL*
- Built a **multiplayer** word-guessing game (like Wordle) with group leaderboards and **real-time progress tracking**
- Developed the main **game loop** on the frontend, ensuring smooth **state management** and responsive gameplay
- Implemented **tRPC routers** for authentication, user management, and group management

**TapCode** │ *Flutter*
- Engineered an **accessibility**-focused **Flutter** application that converts speech to haptic **morse code** patterns using Flutter's vibration API
- Integrated **Google Gemini** for text optimization, reducing transmission time while maintaining message integrity
- Implemented bi-directional translation between speech and morse code, enabling **two-way communication** for users with **visual or auditory impairments**