Aarjav Patni

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EDUCATION

University of Waterloo

Waterloo, ON

Bachelor of Software Engineering

Sep 2023 - May 2028 (expected)

EXPERIENCE

Recurse Center §

New York, NY

Recurser

Jul 2025 - Sep 2025

- Built PyPoker, a **Python**-based multiplayer poker simulator with a custom hand evaluation algorithm and room-based architecture over WebSockets
- Designed and implemented Orbit, a Rust-based distributed file storage system with encryption, P2P networking, sharding across nodes, and rich TUI for fault-tolerant data resilience
- Implemented Vortex, a Go project solving fly.io's Gossip Glomers challenges on distributed systems
- Collaborated on mind-map-crdt, a **TypeScript** multiplayer mind map application using **CRDTs** for state sync

Voltra 🔗

Waterloo, ON

Software Engineering Intern

Jan 2025 - Apr 2025

- Architected and maintained modular **Terraform**-based **Kubernetes** clusters on AWS and GCP for the microservices architecture of chargepoint software
- Built **ArgoCD**-driven infrastructure abstraction enabling engineers to provision environments on-demand through declarative GitOps workflows, eliminating manual cluster setup
- Implemented self-hosted distributed tracing using SigNoz and network-level observability with Cilium Hubble
- Developed an **ETL** microservice in **Elixir** using **AWS S3** and **DuckDB** to ingest, aggregate and normalize electrical grid data across 8 regions and 18 data formats

Readwise §

Toronto, ON

Software Engineering Intern

May 2024 - Aug 2024

- Developed an internal **Django** API to streamline feedback ticket triaging, handling **300+** daily requests, and integrated it with Slack for daily customer experience (CX) statistics
- Engineered a **TypeScript**-based Raycast tool to interact with the API, empowering the CX team to create task issues efficiently and save **50+** hours per month
- Implemented a document search feature in **React** for the **Rust** desktop app to overcome Safari Webkit limitations
- Refactored the Rust-based desktop app's auto-update mechanism to interoperate safely with the TypeScript frontend, preventing race conditions and update failures.
- \bullet Increased PDF to HTML conversion accuracy by 75% using Diffbot parser APIs, greatly enhancing textbook and research paper readability

Projects

Orbit | GitHub

- A Rust-based distributed file storage with adaptive chunking, per-shard encryption, and P2P discovery
- Implemented mDNS service discovery and gossip protocols for automatic peer coordination
- Designed fault-tolerant replication across nodes with graceful failure handling and recovery
- Created rich TUI with ratatui for real-time network topology and file operation visualization

Orderbook Proxy API Server | GitHub

- Developed a proxy API server in **Rust** to speed up the processing of sample trade data by 64%
- Implemented a least recently used (LRU) caching strategy to reduce API calls by 83.6%
- Engineered additional logging functionality to monitor query performance and track system metrics
- Documented the project's performance benchmarks, design decisions, and tradeoffs

Hostel Management System | GitHub | Demo

- Developed a full-stack web application to digitize and streamline student tenant management
- Built the frontend using NextJS and Supabase PostgreSQL for the backend
- Implemented an admin interface to view, add, and update student and billing records using the Supabase API
- Automated student billing process by integrating logic to dynamically calculate rent and utilities costs based on past monthly billing data, and generate invoices accordingly

SKILLS

Languages: C, C++, Python, Rust, Go, TypeScript, JavaScript, Elixir, Java, VHDL, Assembly, HTML, CSS Technologies: Kubernetes, Terraform, Docker, React, React Native, NextJS, Django, PostgreSQL, AWS, GCP, Pandas