Ryan Zhang

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Education

University of Waterloo – Waterloo, ON, Canada   Class of 2020 – 2025

- **Major:** Computer Science, Honours, B.C.S. (cumulative GPA: 3.9/4.0)
- **Relevant Coursework:** Database Management, Distributed Computing, Algorithm Design, Data Structures & Data Management, Distributed Systems, Introduction to Machine Learning, Compiler Construction, Computer Networks
- **Awards:** Faculty of Mathematics Scholarship, President's Scholarship of Distinction, 7 consecutive Term Distinctions

Experience

Engineering Intern – X (Twitter)   Sep 2024 – Dec 2024

- Automated cleanup of checkpointed state to reclaim petabytes of network storage, optimizing storage utilization
- Developed custom Prometheus exporter and Grafana dashboards to monitor networked file systems
- Performed critical maintenance and incident response for data center operations, ensuring minimal downtime
- Led efforts to identify and eliminate flaky tests, reducing false failure rates and improving CI/CD performance

Platform Engineering Intern – Bodo   May 2024 – Aug 2024

- Added cron job support for clients to run HPC heavy workloads on proprietary python/SQL engine with Kubernetes, Docker, and Terraform, enabling valuable business intelligence reporting capabilities
- Implemented backend and infrastructure optimizations to increase performance, security, and observability
- Provisioned AWS and Azure machine instances via task queue, increasing system scalability and reliability

ML Infrastructure Fullstack Engineering Intern – X (Twitter)   Jan 2024 – Apr 2024

- Built GPU-backed Jupyter entrypoint for ML engineers, cutting cloud service costs and boosting cluster utilization
- Developed monitoring UI to streamline job lifecycle tracking and incident triage for thousands of jobs
- Implemented a chatbot using Retrieval-Augmented Generation (RAG) to surface internal documentation and summarize answers, streamlining engineering workflows
- Owned CI/CD infrastructure across multiple repos, improving DevOps velocity and test coverage

Software Engineering Intern – RxFood Co.   May 2023 – Aug 2023

- Reduced data admin form completion time by 50% through fullstack solutions and backend system optimizations
- Implemented robust QA infrastructure using API-table validation to ensure service quality in healthcare workflows
- Built internal pasteboard tool to streamline repetitive form entry for a core team workflow

Projects

Java Subset Compiler – catmachina.github.io/Java-Subset-Joos-Compiler   Jan 2025 – Apr 2025

- Developed Bison/Flex grammar rules with AST construction and source location tracking for accurate error reporting
- Added semantic analysis including class hierarchy and type-checking validation to enforce compile-time correctness
- Implemented live variable analysis and reachability to support dead code elimination and return path validation
- Created a simulator to test IR tree execution by interpreting it as a custom instruction set
- Built debugging and automation tools, including visualization, formatting, and testing scripts for iterative development

Skills

Languages: Python, C/C++, Bash, TypeScript, JavaScript, SQL, Scala
Tools: Git, Slurm, Puppet, Packer, Jenkins, Docker, Kubernetes, Helm, AWS
Data & Backend: PostgreSQL, NodeJS, Flask, Spark, Hadoop