

# Jason Bourne

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## EDUCATION

**Northeastern University, Canada**, Master of Computer Science Jan. 2023-Current  
Core courses: Computer System, Distributed System, Building Game Engine  
**University of Tokyo**, Master of Engineering Apr. 2019-Mar. 2021

## SKILL

**Languages:** Java, C, C++, Python, JavaScript, TypeScript, SQL, Shell, HTML, CSS, Bash  
**Frameworks/Databases:** Spring Boot, MyBatis, Express, MySQL, PostgreSQL, MongoDB, Redis  
**DevOps/Cloud:** Docker, Kubernetes, GitLab CI/CD, AWS, GCP, NGINX, Zookeeper, Kafka, RabbitMQ, RocketMQ  
**Frontend/Testing/Tools:** React, Redux, Git, Linux, Maven, IDEA

## WORK EXPERIENCE

Software Developer Co-op | Teck Resources Limited | Vancouver, Canada Aug. 2024-May 2025

- Designed and implemented an automated synchronization system for ATS platforms, utilizing **API, OOP, Python, Power Platform, and virtual machines**, increasing operational efficiency by 70%
- Directed and executed **comprehensive system** testing with cross-functional teams to ensure functionality and reliability from both user and system perspectives, proactively identifying and resolving potential issues
- Designed and implemented a ticketing system** integrated with **Power Automate, SharePoint, Power BI, Teams, and Azure DevOps**, enhancing team collaboration through an intuitive interface that captures chat messages, dynamically updates DevOps ticket statuses, and generates reports via **Power BI and Azure DevOps** for improved tracking and decision-making

## PROJECT / HACKATHON

### Distributed KV Storage System

A high-performance KV storage system using Raft, achieving 8,000 ops/sec, sub-ms latency, and 99% uptime

- Implemented a distributed consensus protocol based on **Raft**, incorporating mechanisms such as leader election, log synchronization, and snapshot management to maintain data integrity and fault tolerance across multiple nodes
- Designed a modular storage architecture that supports **diverse engines**, including **RocksDB, B-tree, and hash tables**, enhancing adaptability to different I/O models and maximizing storage efficiency
- Optimized read/write throughput by 90%** by leveraging advanced techniques such as asynchronous log application, ReadIndex optimization, and follower-initiated read requests

### GuideSense: Winner (1st Place), Microsoft × Snapdragon Hackathon

A real-time navigation system that leverages computer vision and audio feedback to guide visually impaired users

- Integrated **YOLO** object detection and **OpenCV** to process live video streams and identify spatial obstacles and pedestrian pathways with high accuracy
- Designed an interactive user interface that provides audio alerts and vibration cues based on object type, direction, and proximity
- Developed a real-time **audio feedback engine** using Python **multithreading**, cross-platform **TTS**, and debounced message queuing with prioritization, enabling low-latency spatial alerts and adaptive urgency cues

### Interactive Tarot Card Reading Web Application

A fully interactive Tarot card reading full stack application allowing users to simulate Tarot Master using GPT

- Developed a sign-in page for both registered guests and users with integration of **Auth0** for user authentication and role management
- Designed an interactive UI for card flipping using **React** and **CSS** animations
- Developed a forum where users can add, edit, and delete comments with real-time updates, utilizing **Node.js, Express, Prisma, and PostgreSQL** to record users' tarot card and comment history
- Enabled users to ask questions and receive responses from a simulated Tarot Master powered by the **GPT-3 API**
- Ensured **responsive design** for usability across different devices