

Ishan Baliyan

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Skills

Languages C++ · Python · Golang · Java · Scala · JavaScript/TypeScript · SQL
Tools AWS · Docker · Kubernetes · Linux · OpenStreetMap · MapBox · Google Maps API · Git
Frameworks Distributed Systems · Spatial Algorithms · Route Optimization · Fleet Data Analysis · High-Performance Computing

Education

University of Waterloo Sep. 2021 – Apr. 2026
Candidate for Bachelor of Computer Science · GPA: 3.9/4.0 Waterloo, ON

- **Competitive Programming:** Top 1% on Leetcode Competitions out of 30,000 participants (2023, 2024)
- **Publications:** Co-author of 2 peer-reviewed publications in Databases and Distributed Systems at University of Waterloo
- **Coursework:** Algorithms, Spatial Data Structures, Computer Graphics, Distributed Systems, Mobile Development, GIS

Work Experience

Twitter (xAI) Apr. – Sep. 2025
Staff Software Engineer, Navigation Systems San Francisco, CA

- Developed high-performance navigation algorithms in C++ and Python, powering autonomous routing services for millions of users.
- Led implementation of fleet data analysis pipeline that improved route optimization by 65% using distributed computing.

PlayStation Sep. – Dec. 2024
Staff Software Engineer, Maps Routing
Chicago, IL

- Designed and implemented scalable mapping services in C++ and Golang that processed terabytes of geospatial data daily.
- Built next-generation routing algorithms that improved ETA prediction accuracy by 40% using live traffic data integration.
- Collaborated with cross-functional teams to develop client-server navigation architecture serving millions of concurrent users.

Kinaxis Sep. 2023 – Apr. 2024
Senior Software Engineer, Navigation Systems Toronto, ON

- Architected backend routing optimization services in Java and C++ that reduced computational overhead by 50% at scale.
- Developed distributed fleet data processing platform handling millions of location updates per minute with sub-second latency.
- Implemented advanced path-finding algorithms incorporating real-time traffic data for optimal route generation.

Atolio May. 2022 – Jan. 2023
Software Engineer, Maps Navigation
San Francisco, CA

- Built robust navigation backend services in Python and Java for turn-by-turn guidance in complex urban environments.
- Designed efficient geospatial data processing pipeline that improved map rendering performance by 70% on mobile devices.
- Created algorithmic solutions for integrating and processing OpenStreetMap data for high-precision navigation systems.

MVS Systems Jun. – Aug. 2021
Software Engineer, Maps Location Services
Toronto, ON

- Developed backend APIs in Java and Golang to serve real-time location data and routing information to client applications.
- Built high-performance spatial indexing algorithms that improved location-based query performance by 60%.
- Created comprehensive testing framework for validating navigation accuracy across diverse geographical environments.

Relevant Projects

🔗 **Advanced Navigation System** | *C++, Python, Golang, OpenStreetMap, PostgreSQL/PostGIS, AWS, Docker*

- Engineered a high-performance navigation platform with fleet data analysis for predictive routing and traffic estimation.
- Implemented distributed spatial indexing algorithms that improved point-of-interest search performance by 75% at scale.
- Developed vector tile rendering pipeline that reduced map data transfer by 65% while maintaining visual fidelity.
- Created efficient route optimization algorithms accounting for traffic patterns, ETA prediction, and road conditions.
- Built a scalable backend architecture capable of handling millions of concurrent location queries with sub-10ms latency.

🔗 **Autonomous Navigation Platform** | *C++, Python, Java, Golang, OpenStreetMap API, AWS, Kubernetes*

- Developed a comprehensive navigation engine with turn-by-turn guidance and autonomous routing capabilities.
- Implemented high-performance path planning algorithms in C++ and Golang for complex navigation scenarios at scale.
- Designed distributed backend services to process terabytes of fleet data for improved routing decisions.
- Created an intuitive API for third-party developers to integrate advanced navigation capabilities into their applications.