

Yucheng Yang

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Education

Master of Science in Information Systems (GPA: 3.8/4.0)

Sep. 2024 - Dec. 2025

Northeastern University, Vancouver, BC

Relevant Courses: Data Science, Web Development, Application Engineering

Bachelor's Degree in Digital Media Technology, School of Software

Sep. 2014 - Jun. 2018

Yunnan University, China

Relevant Courses: Data Structures, Networking, Database, Software Engineering

Technical Skills

Languages:	Java, Python, SQL, Kotlin, C#, JavaScript, TypeScript, C
Backend:	Spring Boot, ASP.NET Core, RPC (Thrift), JNI, REST APIs
Databases:	DuckDB, MySQL, PostgreSQL, SQLite, Redis, Supabase (Firebase)
Infrastructure:	Docker (Compose), AWS (EC2, S3), Azure (App Service), Vercel, Git, CI/CD, Maven, Gradle, Linux
Frontend:	React, TailwindCSS, SwiftUI, Electron

Work and Projects Experience

Open-Source Community Toxicity Analysis System

Mar. 2025 - Oct. 2025

Architected a high-throughput data processing system for large-scale social signal analysis

- Optimized the ingestion and transformation of **2TB+** GitHub Archive data by leveraging **DuckDB's columnar engine**; designed multi-stage SQL filtering to extract **300M+** comments for toxicity analysis while minimizing I/O overhead and memory footprint
- Developed a **modular Python ETL pipeline** that decoupled data extraction, NLP inference, and storage, improving the codebase's extensibility for diverse analysis domains
- Integrated **NLP models (Hugging Face)** into the backend workflow using batch processing techniques to enhance inference throughput for large-scale text classification
- Ensured system portability and reproducibility by containerizing the entire environment with **Docker** and implementing a config-driven architecture (YAML) to manage project parameters

Autonomous Vehicle Behavior Analysis System

Sep. 2024 - Feb. 2025

Developed a spatial-temporal data processing engine for multi-agent interaction modeling

- Engineered a data retrieval module using **SQLite** and **Python** to filter **1,322 target scenarios** from **250k+ sequences**, isolating key **motorcycle-vehicle interactions** via optimized relational queries
- Developed a **feature extraction library** using NumPy that integrated signal smoothing (Savitzky-Golay) and normalization to convert noisy raw trajectories into structured spatial-temporal metrics
- Built a **visualization and diagnostic tool** to render clustered trajectories into animated GIFs, enabling the validation of driving behaviors identified by the clustering engine

Quantum Key Issuance Project (at Reborn Quantum Technology Co., Ltd.)

Jul. 2019 - Oct. 2021

Developed a hardware-software system for secure quantum random number distribution

- Developed a **Java service layer** to interface with Quantum Random Number Generators (QRNG), managing secure data streams for centralized remote key issuance
- Implemented a low-latency communication framework using **Apache Thrift (RPC)** to facilitate efficient data exchange between servers and remote terminals
- Integrated **JNI (Java Native Interface)** to bridge Java software with **C/C++ hardware APIs**, optimizing device initialization and lifecycle management
- Built a **JavaFX** desktop client with a custom **ECC-based encryption algorithm**, ensuring secure hardware configuration and data integrity during issuance

Quantum-Secured Office Network Project (at Reborn Quantum Technology Co., Ltd.)

Jul. 2018 - Mar. 2019

Integrated quantum-encrypted networking and secure communication protocols into enterprise systems

- Integrated **quantum encryption keys** into **OpenVPN** and **VoIP** architectures, enabling hardware-level encrypted networking and secure voice communication for office environments
- Customized and deployed the **BigBlueButton** video conferencing stack, optimizing **Nginx reverse proxy** and server-side configurations to ensure low-latency media stream distribution
- Developed identity **authentication** modules for Android and web-based platforms using quantum USB keys, enforcing unified access control across different enterprise communication terminals