Kexuan Miao

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Experience

Software Engineer Intern May 2025 – Present
VecML *Remote*

- Extended a Redis-style in-memory key-value store in C++17 with lock-based concurrency control and persistence via batched fsync.
- Benchmarked and optimized read/write paths to improve throughput and tail latency under concurrent workloads.

- Implemented a distributed key-value store using single-threaded, event-loop– driven nodes, enabling linearizable execution at the node level.
- Designed deterministic sharding via CRC16-based fixed hash slots for request routing across nodes.
- Designed and deployed a production SIEM backend with a high-throughput log ingestion pipeline and real-time detection services in C++.
- Exposed low-latency REST endpoints for querying alerts and system statistics.

Education

University of Alberta Edmonton, AB
Bachelor of Science, Computing Science *Sep 2023 – Dec 2026 (expected)*

- **Relevant coursework:** Algorithm Design in Practice, Operating System Concepts, File and Database Management

Awards

ICPC, North America Championships May 2023, 2024, 2025
Orlando, FL

- Qualified 3 consecutive years; ranked 45th/36th/49th among top US/CA teams.

ICPC, Rocky Mountain Regional Contest Feb 2023, Nov 2023, Nov 2024, Nov 2025
Edmonton/Calgary, AB

- Placed 6th (Feb 2023), 2nd (Nov 2023), 3rd (Nov 2024), and 3rd (Nov 2025) out of 40+ teams in the Rocky Mountain region; qualified for North America Championships 3 years in a row.

ICPC Training Camp powered by Huawei Aug 2024
Guiyang, China

- Invited for a training camp with 31 top regional teams focused on advanced algorithms and problem-solving techniques.

Projects

SyncQR | *Java, Gradle, Git, Google Firebase* Jan 2024 – April 2024

- Built an Android application used by 100+ users, supporting QR check-in, attendee tracking, and real-time event updates.
- Achieved 90% unit test coverage and improved sync performance by 30% through optimized Firebase read/write operations.

Under Pressure | *Unity, C#* Jan 2024 – April 2024

- Implemented core gameplay systems including item handling, movement, interaction, and UI menus for a team-based 2D game project.
- Improved stability by refactoring gameplay logic and reducing runtime errors.

Technical Skills

Languages: C, C++17, Python, C#, JavaScript
Technologies: Docker, Crow, PostgreSQL, Redis, Django, Flask
Tools: Linux, Git, CMake, Firebase, React