Hans James

New Delhi, India
+91-9643976553 | hans.james.james@gmail.com | linkedin.com/in/bat4k | github.com/BAT4K

Education

Shiv Nadar University — Greater Noida, India
Bachelor of Technology in Computer Science & Engineering — *2024 – 2028 (Expected)*

- **CGPA**: 7.8/10.0
- **Coursework**: Data Structures, Object-Oriented Programming, Computer Organization & Architecture (COA), Operating Systems, Discrete Mathematics, Digital Electronics.

Technical Skills

Languages: Java (Core, Multithreading, NIO), C, Python, Shell Scripting (Bash)
Core Concepts: Low-Latency Systems, Distributed Systems, Concurrency, Memory Management, TCP/IP Networking
Tools & Platforms: Linux (Fedora), Git, IntelliJ IDEA, Maven
Libraries: JavaFX, Java NIO, JUnit

Key Projects

Magma - Low-Latency Trading Engine | *Core Java, Concurrency*

- Engineered a **lock-free matching engine** achieving **130ns median latency** using a Single-Writer/Single-Reader architecture.
- Implemented the **LMAX Disruptor pattern** via a custom Ring Buffer, utilizing **bitwise masking** for O(1) slot claiming.
- Eliminated **Garbage Collection pauses** by implementing an **Object Pool**, pre-allocating 1M+ objects at startup.
- Developed a **Non-Blocking I/O (NIO) Gateway** using Java Selectors to handle concurrent TCP client connections.

NioKvStore - Distributed Key-Value Database | *Java NIO, Distributed Systems*

- Architected a high-throughput **event loop server** using Java NIO Selectors, handling 10k+ concurrent connections using the **Reactor Pattern**.
- Implemented **Asynchronous Master-Slave Replication**, enabling real-time data propagation for read scalability.
- Engineered a tunable **Persistence Layer (AOF)** with 64KB write buffering and background fsync flushing.
- Designed a **hybrid memory management system** utilizing lazy expiration and probabilistic background sampling.

Whack-A-Mole - Concurrent Desktop Game | *JavaFX, Multithreading*

- Engineered a **multi-threaded game loop** decoupling the game logic thread from the rendering thread to ensure 60 FPS responsiveness.
- Designed a **polymorphic entity system** using an abstract hierarchy to manage dynamic game state efficiently.
- Implemented **thread-safe UI updates** using `Platform.runLater` to prevent race conditions between logic and UI.

Extracurriculars

Hackathon Participant: Nominated among top 12 teams in **Smart SNU Hackathon '24** for Smart India Hackathon '24; participant in **Envisage Hackathon 2025** (ACM-W SNU).

Bass Player, Snuphoria (Music Club): Active musician performing in university events and cultural fests; collaborate with the band for live performances.

Video Editor, Breeze '24: Member of the official videography team for the university's annual cultural fest; managed post-production and editing for event coverage.