# Minh Vu

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## Education

**Gettysburg College** Gettysburg, PA

*Bachelor of Science in Computer Science and Mathematics* ***Expected:*** *Dec 2026*

- **Courses:** Data Structures and Algorithms, The Theory of Computation, Database Systems, Operating Systems
- **Achievements: Bronze Medal** at PSU-Harrisburg site The **ICPC Mid-Atlantic Regional Contest 2024**

## Experience

**VinAI** Hanoi, Vietnam

*Software Engineer Intern* *Jun 2024 – Aug 2024*

- Boosted information sharing speed by **15%** by architecting a master/slave bidirectional synchronization system for GuardPro camera vector databases
- Enhanced system reliability by implementing fault-tolerant two-way synchronization logic for distributed database servers, resulting in **99.8%** uptime for real-time camera operations
- Collaborated with AI teams to implement **MongoDB schema** extraction, streamlining data access and supporting more efficient processing for object recognition models

**Gettysburg College** Hanoi, Vietnam

*Full-stack Developer* *Jun 2025 – July 2025*

- Built a full-stack event management app for the Department using **React.js**, **Tailwind**, **Express.js**, and **MySQL**
- Automated attendance tracking, reducing administrative workload by **60%** and streamlining event coordination

**Gettysburg College** Remote

*Undergraduate Researcher Assistant* *May 2024 – Jul 2024*

- Co-authored peer-reviewed study **"Optimal Play of the All Yellow Zombie Dice Game,"** published in Springer's academic book series (ISBN: 978-3-031-86585-5)
- Engineered a **Java-based** simulation achieving 99% alignment with optimal game strategies
- Implemented **value iteration** techniques to calculate winning probabilities across **50+** different game scenarios

## Projects

**Book Ordering System** *Java, Spring Boot, Apache Kafka, Docker, PostgreSQL, Kubernetes* May 2025 – July 2025

- Developed a **distributed book ordering system** using **Spring Boot**, featuring 3 core microservices (order, payment, store)
- Implemented the **SAGA** pattern for distributed transaction management, utilizing **Apache Kafka** for asynchronous, event-based communication
- Applied the **Outbox** pattern with **Debezium** and **PostgreSQL** for data consistency, and implemented **CQRS** to reduce read-query latency by **40%**

**Mail Chat** *Go, Docker, Kubernetes, Docker Swarm, gRPC, Postgres, MongoDB, RabbitMQ* June 2024 – July 2024

- Built a distributed chat app in **Go** with microservices for large-scale message delivery, including an email-style bulk messaging feature
- Developed secure Auth Service, **PostgreSQL**, and Broker Service; enabled event-driven workflows via **RabbitMQ**, **gRPC**, and **REST**
- Containerized with **Docker**, deployed to **Docker Swarm** & **Kubernetes** for scalable orchestration and service management

**Books Searcher System** *Java, Apache Zookeeper, Java HTTP Server and Client, Protocol Buffer* Dec 2024

- Created "Books Searcher" distributed system that reduced book search times by **40%** using **TF-IDF algorithm**
- Ensured fault tolerance using **Apache Zookeeper** with automatic recovery within 5 seconds of node failure
- Optimized communication between system components using **Google Protocol Buffer**, reducing payload by **25%**

## Technical Skills

**Languages**: Java, JavaScript, Go, Python, C++, SQL

**Frameworks**: React, Node.js, Express.js, Postgres, RabbitMQ, MongoDB, OracleDB, Docker, Kubernetes, Docker Swarm, Bootstrap, Couchbase