Minh Vu

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Education

Gettysburg College — Gettysburg, PA
Bachelor of Science in Computer Science and Mathematics — *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*
- Worked in the GuardPro team to enhance the reliability of camera product line with object recognition capabilities
- Built a two-way sync system with **Zookeeper** for camera databases using a master-slave setup, making data sharing **2.1%** faster and keeping uptime at **99.8%**
- Worked with the AI team to extract **MongoDB** schemas, making data access easier and speeding up object recognition model processing by **6%**

Techstacks: Express.js, Node.js, MongoDB, Apache Zookeeper, Couchbase

Gettysburg College — Gettysburg, PA
Full-stack Developer — *Jun 2025 – Jul 2025*
- Developed a full-stack event management web app for the Department using **React.js**, **Tailwind**, **Express.js**, and **MySQL** to handle event scheduling, attendance, and resource allocation

Techstacks: Express.js, Node.js, React.js, MySQL, Tailwind, Apache

Gettysburg College — Remote
Undergraduate Researcher Assistant — *May 2024 – Jul 2024*
- Co-authored **"Optimal Play of the All Yellow Zombie Dice Game"** published in Springer's book series
- Designed human-playable game strategy using **Java** simulation, achieved **99%** alignment with optimal strategies

Projects

Book Ordering Platform
- Developed a distributed book ordering platform using **Spring Boot** microservices to resemble customer workflows such as order placement, payment, and delivery
- Orchestrated book order transactions across services with **Apache Kafka** and the **SAGA** pattern, enabling consistent updates to order, payment, and delivery status with retry and rollback mechanisms
- Maintained integrity of order and payment records using the **Outbox** pattern and **Debezium** on **PostgreSQL**, while applying **CQRS** to support scalable, low-latency queries for reporting and operations

Techstacks: Java, Spring Boot, Apache Kafka, Docker, PostgreSQL, Kubernetes, HTML, Bootstrap

Marketing Mail Delivery System
- Built a distributed, multi-microservice chat application in Go, featuring an email-style interface that supports sending the marketing message to multiple recipients for large-scale marketing campaigns
- Developed Auth service with **PostgreSQL** and integrated **OAuth2.0** to provide secure and seamless user sign-in
- Integrated **RabbitMQ** to orchestrate async message, auth and log requests, ensuring efficient backend flows
- Containerized and deployed services with **Docker** to enable independent scalability.

Techstacks: Go, Docker, Kubernetes, gRPC, Postgres, MongoDB, RabbitMQ, HTML, CSS

Song Searcher System
- Developed distributed system in **Java** with TF-IDF algorithm that enables users to query lyrics for matching songs
- Integrated **Apache Zookeeper** to monitor leader and worker nodes to enable auto failure detection and recovery
- Benchmarked performance with **Prometheus** and **Grafana** to achieve query latency of 0.8s for real-time search

Techstacks: Java, Apache Zookeeper, Protocol, Buffer, Prometheus, Grafana, HTML, Bootstrap

Technical Skills

Languages: Java, Python, SQL, JavaScript, Go, C++
Frameworks: React.js, Node.js, MongoDB, PostgreSQL, RabbitMQ, Docker, Kubernetes, Kafka, Zookeeper