# Minh Vu

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## Education

**Gettysburg College** Gettysburg, PA

*Bachelor of Science in Computer Science and Mathematics* ***Expected:*** *Now – 2026*

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

## Experience

**Software Engineer Intern** Hanoi, Vietnam

*VinAI* *Jun 2024 – Aug 2024*

- Developed computer vision models for GuardPro cameras, improving object detection accuracy by 15%
- Worked in a team of three to design and implement two-way synchronization logic for database servers
- Collaborated with the AI development team to gather requirements and implemented MongoDB schema extraction

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

**Undergraduate Researcher Assistant** Remote

*Gettysburg College - Gettysburg, PA* *May 2024 – Aug 2024*

- Designed and implemented an application in Java to optimize strategies and calculate winning probabilities for "All Yellow Zombie Dice," a variant of Zombie Dice
- Developed a 400-line Java algorithm to simulate human-playable strategies, achieving 99% accuracy against optimal play using dynamic programming and value iteration

## Projects

**Mail Chat** | Personal Project | Github June 2024 – July 2024

- Used Go to build a distributed multi-microservice chat application, featuring an email-like form that enables the distribution of the same message to multiple recipients for large-scale marketing purposes
- Developed an Authentication Service with PostgreSQL for secure user management and a Broker Service to handle front-end requests
- Designed an event-driven architecture with RabbitMQ, using gRPC for inter-service communication and REST APIs for external integrations
- Containerized microservices with Docker and deployed application to Docker Swarm and Kubernetes for scalability

*Techstacks: Go, Docker, Kubernetes, Docker Swarm, gRPC, Postgres, MongoDB, RabbitMQ*

**Books Searcher System** | Personal Project | Github Dec 2024

- Used Java to design a highly scalable backend Distributed System that implements a book-searching UI using the TF-IDF algorithm to rank books by their relevance
- Developed a highly fault-tolerant system using Apache Zookeeper to detect and recover when one cluster or aggregator fails
- Used Google Protocol Buffer for communication between UI and server, and HTTP Protocol to communicate between aggregator and clusters

*Techstacks: Java, Apache Zookeeper, Java HTTP Server and Client, Protocol Buffer*

**Calendar 2.0** | Team Project | Github Mar 2024 – May 2024

- Used Express.js and React to design a calendar-based web application, enabling users to efficiently create and manage events
- Implemented a token-based authentication system using Node.js, with MongoDB to manage tokens and user data
- Designed an OracleDB schema to store and manage task-related data
- Crafted three distinct, responsive pages using Bootstrap: Authentication, Calendar view, and event control panel

*Techstacks: React.js, Express.js, Node.js, OracleDB, MongoDB, Bootstrap*

## Technical Skills

**Languages**: Java(3ys), JavaScript(3ys), Go(<1ys), Python(2ys), C++(1ys), SQL (Oracle)(1ys)
**Frameworks**: React, Node.js, Express.js, Postgres, RabbitMQ, MongoDB, OracleDB, Docker, Kubernetes, Docker Swarm, Bootstrap, Couchbase