Minh (Damian) Vu

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Publications appear under Damian Vu and Minh Q. Vu Dinh.

EDUCATION

Gettysburg College, Gettysburg, Pennsylvania *Expected Dec 2026*
B.S. in Computer Science; B.A. in Mathematics (double major)
Mathematics GPA: 3.50/4.00 | Cumulative GPA: 3.17/4.00

PUBLICATIONS

[J1] Zarin Eshika, Benjamin Kennedy, Anindo Majumder, Linh Nguyen, and **Damian Vu**. "A scalar differential delay equation with level-dependent response time." *Electronic Journal of Qualitative Theory of Differential Equations*, 2026, No. 54. doi:10.14232/ejqtde.2026.1.54.

[C1] Todd W. Neller, John C. Llano, **Minh Q. Vu Dinh**, and Clifton G. M. Presser. "Optimal Play of the All Yellow Zombie Dice Game." In *Computers and Games (CG 2024)*, Lecture Notes in Computer Science, vol. 15550, pp. 197–206, Springer, 2025. doi:10.1007/978-3-031-86585-5_16.

RESEARCH EXPERIENCE

Gettysburg College – Hirsch Summer Research Program Gettysburg, PA
Undergraduate Mathematics Researcher; Advisor: Prof. Benjamin Kennedy *Jun–Jul 2025*

- Investigated **nonlinear scalar delay differential equations** with level-dependent negative feedback, examining how changes in delay and feedback affect oscillatory solutions and chaotic dynamics.
- **Derived and proved a piecewise return-map formula** for the fast-response case ($a = 2$, $b = 1$, $d = 3/4$), analyzing changes in trajectory slopes and delayed feedback; coauthored the resulting **2026 journal article**.
- Implemented a **fixed-step forward Euler method** ($h = 1/4000$) in Python/NumPy to simulate delay equations, compute iterated return maps, and explore periodic solutions and bifurcations as delay parameters vary; research notebook.

Gettysburg College – Full Zombie Dice Optimal Play Gettysburg, PA
Undergraduate Researcher Assistant; Advisor: Prof. Todd W. Neller *2026–Present*

- Extended the optimal-play problem from the all-yellow variant to the **full original Zombie Dice game**, accounting for dice with different outcome probabilities; collaborated on a **complete optimal-play solution** for the expanded game. Ongoing research project.

Gettysburg College – All Yellow Zombie Dice Optimization Gettysburg, PA
Undergraduate Research Assistant; Advisor: Prof. Todd W. Neller *May–Jul 2024*

- **Derived Bellman optimality equations** for the five-variable game state $P(p, i, j, b, s)$, combining multinomial dice-roll probabilities with recursive roll/hold decisions; implemented a **Java solver** to cross-validate results against collaborators' independent methods.
- Developed **"Minh Cases," an original piecewise roll/hold policy** using shotgun-dependent stopping rules and opponent-score thresholds; achieved a win probability within **1.33 % points of optimal play**, maintaining human-playable decisions.

SELECTED COURSES

Completed mathematics coursework

- Real Analysis (A-)
- Abstract Algebra (B+)
- Linear Algebra (A-)
- Chaos and Dynamical Systems (A-)
- Abstract Mathematics I & II (A-, A-)

Current / complementary coursework

- Number Theory (Fall 2026)
- Differential Equations (Fall 2026)
- Multivariable Calculus
- Theory of Computation
- Data Structures and Algorithms

TEACHING & PEER LEARNING EXPERIENCE

Gettysburg College – Department of Mathematics *Gettysburg, PA*
Peer Learning Assistant & Course Grader | MATH 111, 112, 212

- Served as an **in-class Peer Learning Assistant for Calculus I (MATH 111)**, helping students work through calculus concepts and problem-solving during class.
- **Graded weekly homework** for **Linear Algebra (MATH 212)**, assessing mathematical solutions and written reasoning.

Gettysburg College – Department of Computer Science *Gettysburg, PA*
Course Grader | CS 111: Introductory Computer Science; CS 112: Object-Oriented Programming

- **Graded programming homework** in both introductory courses, evaluating students' problem-solving and code submissions.
- Held **student office hours** for questions about programming concepts, homework, and course material.

PRESENTATIONS

Minh Q. Vu Dinh (with Todd W. Neller and John C. Llano). "Optimal Play of the All Yellow Zombie Dice Game." Oral presentation at the *12th International Conference on Computers and Games (CG 2024)*, virtual conference, November 25, 2024.

SELECTED PROFESSIONAL EXPERIENCE

VeneraAI Remote
Software Engineer Intern *Jun 2026–Present*

- Evaluated speech-recognition models and built an offline Python/FastAPI transcription pipeline.
- Engineered streaming inference with sub-real-time CPU transcription and partial-result latency under 300 ms.

VinAI Vietnam
Software Engineer Intern *Jun–Aug 2024*

- Implemented distributed recognition-telemetry services and ZooKeeper-based leader election, achieving simulated failover in **under 1.5 seconds**.

Gettysburg College PA, US
Full-stack Engineer *June 2025–July 2026*

- Built and deployed a React/Express event-management application centralizing event registration and management workflows.

TECHNICAL & RESEARCH SKILLS

- **Computational research:** Python, Pandas, Jupyter Notebook, Java.
- **Other programming:** C++, Go, SQL, Git, Linux, PostgreSQL, Docker.

HONORS & ACTIVITIES

- **Dean's List**, Gettysburg College (Fall 2023); **Commendation List** (Fall 2024).
- **36th place**, 2024 ICPC Mid-Atlantic Regional Programming Contest.