Evan Halloran

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EDUCATION

Indiana University Bloomington **December 2025**
Luddy School of Informatics, Computing, and Engineering **GPA: 3.853 / 4.0**
Bachelor of Science in Computer Science and Pure Mathematics *Hutton Honors Notation*
Specialization: Artificial Intelligence
Minor: Linguistics

EXPERIENCE

West Virginia University Mathematics REU Internship **Summer 2025**
- Analyzed a Keyfitz-Kranzer type system of hyperbolic conservation laws with applications in ecology and physics
- Implemented the LLF flux-splitting scheme in Matlab to numerically analyze behavior of solutions in the phase-plane

Indiana University Mathematics REU Internship **Summer 2024**
- Researched bifurcation theory and phase transition dynamics to model binary systems and fluid separation
- Applied center manifold theory to reduce the Cahn-Hilliard equation over planar lattices to a system of ODEs

IU Mathematics Department **Fall 2022 - Spring 2025**
Finite Mathematics/College Algebra TA
- Proctored exams, hosted weekly tutoring sessions, and graded homework in a timely manner for the department

Bloomington Drosophila Stock Center **Spring 2021 - Present**
- Nurtured stocks of genetically-mutated fruit flies for a genomics lab and treated sick colonies with various medicines

TECHNICAL SKILLS

Languages: Python, Java, C, Racket (Lisp), SQL, Matlab, HTML, CSS, JavaScript
Libraries/Frameworks: TensorFlow, PyTorch, Scikit-learn, Pandas
Operating Systems: Linux, ROS2

PROJECTS

Registerized Interpreter **Fall 2024**
- Registered a bootstrapped interpreter in Lisp using parsing techniques to translate programs into C, Java, and Python

Snake AI Model **Fall 2023**
- Created an AI agent to play the popular online game Snake by implementing various search algorithms and path finding techniques. Developed and tested own heuristic for the A* search algorithm.

PUBLICATIONS

- "An analysis of the Riemann problem for a 2x2 system of Keyfitz-Kranzer type balance laws with a time-dependent source term", *Physics of Fluids*.
- "An analysis of the Riemann problem for a 2x2 system of Keyfitz-Kranzer type conservation laws using shadow waves and Dafermos regularization", under review.
- "Cahn-Hilliard on lattices: dynamic transitions and pattern formations", *Communications in Mathematical Sciences*.

INVOLVEMENT

Alpha Phi Omega **Spring 2023 - Spring 2025**
- Chaired a national service fraternity at Indiana University centered around leadership, fellowship, and service
- Established various volunteer networks with the local Adopt-A-Road program and Hoosier Hills food pantry

Indiana University Student Foundation **Fall 2022 - Spring 2025**
Membership Committee and Alumni Affairs Committee
- Authored the foundation's newsletter, tracked member attendance, and planned inter-foundation events
- Fostered connection with foundation alumni and curated public display cases of Little 500 memorabilia

AWARDS

Corey M. Manack Memorial Scholarship (*three time recipient)* **Spring 2023, Spring 2024, Spring 2025**
Mathematics Departmental Award for Academic Excellence **Spring 2022**

INTERESTS

historical linguistics, classical piano, entomology/insects, rock climbing, swimming