

THOMAS M. GAUL

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EDUCATION

Indiana University Bloomington, Bloomington, IN

2021 - 2025

B.S. in Cognitive Science

Minor in Microbiology

- Major concentration in Computation
- Departmental Honors in Cognitive Science
- Dean's List

PUBLICATIONS

1. **Gaul, T. M.** (2024). Autopoiesis in RealLife Euclidean automata. In *ALIFE 2024: Proceedings of the 2024 Artificial Life Conference*, pages 818–826. MIT Press.
2. Beer, R. D., McShaffrey, C., and **Gaul, T. M.** (2024). Deriving the intrinsic viability constraint of an emergent individual from first principles. In *ALIFE 2024: Proceedings of the 2024 Artificial Life Conference*, pages 192–200. MIT Press.

In Review:

1. **Gaul, T. M.** and Izquierdo, E. J. (2024). Cognitive distinctions as a language for cognitive science: Comparing methods of description in a model of referential communication. Submitted to *Artificial Life*.

HONORS AND AWARDS

Murray Austin Goldstone Scholarship for Undergraduate

Research, *Indiana University Cognitive Science*.

September 2024

Outstanding Contribution Award, *Indiana University Cognitive Science*.

April 2024

Robert J. Glushko Award for Outstanding Research in

Cognitive Science, *Indiana University Cognitive Science*.

April 2023

EXPERIENCE

Midwest Undergraduate Cognitive Science Conference

Fall 2023 - Spring 2025

Organizer

- Doing outreach to improve attendance over the previous year
- Managing finances to ensure secure funding

Students of Cognitive Science

Spring 2024 - Spring 2025

Treasurer

- Purchasing necessary materials for every meeting to improve attendee experience
- Managing account funds to ensure continued financial support

Academic Fairness Committee

Fall 2023

Committee Member

- Sat in hearings and voted to ensure academic integrity and fairness

PRESENTATIONS

1. **Gaul, T. M.** “Autopoiesis in RealLife Euclidean automata.” *2024 Artificial Life Conference*. Copenhagen, Denmark, 2024.
2. **Gaul, T. M.** “The biology and cognition of emergent individuals in RealLife Euclidean automata.” *Sixteenth Annual Midwest Undergraduate Cognitive Science Conference*. Indiana University Bloomington, IN, 2024.
3. **Gaul, T. M.** “Communication and embedded autonomy: a minimal model of referential communication.” *Fifteenth Annual Midwest Undergraduate Cognitive Science Conference*. Indiana University Bloomington, IN, 2023.

SKILLS AND INTERESTS

- **Languages:** C++, Python, Wolfram Language, Java, Bash
- **Software:** Linux, Mathematica, L^AT_EX, Inkscape, Matplotlib, NumPy
- **Mathematics:** Dynamical Systems Theory, Linear Algebra, Vector Calculus
- **Areas of Interest:** Theoretical Biology, Autopoiesis, Viability, Cognitive Science, Evolutionary Robotics, Philosophy of Science, Buddhist Philosophy