Paige Yeung

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Research Interests

Applied dynamical systems; mathematical ecology; collective behavior; reaction–diffusion systems

Education

Ph.D. Mathematics, University of Minnesota, Minneapolis, MN   *2025 – present*
Advisor: Arnd Scheel
B.S. Mathematics, Massachusetts Institute of Technology, Cambridge, MA   *2021 – 2025*
Minors: Earth, Atmospheric, and Planetary Sciences; Literature · GPA: 4.9/5.0

Selected Publications & Preprints

3. Clifton, O., Chavez, A., Madrigal, A., Warren, A., **Yeung, P.**, Scheel, A. Vacuum bubble and fissure formation in collective motion with competing attractive and repulsive forces. Preprint.

2. Carter, P., Doelman, A., van Heijster, P., Levy, D., Maini, P., Okey, E., **Yeung, P.** Deformations of acid-mediated invasive tumors in a model with Allee effect. *J. Math. Biol.* **90** (2025), Article 55.

1. **Yeung, P.**, Perian, Q., Robertson, P., Fitzgerald, M., Fowler, M., Sienkiewicz, F., Tock, K. Searching for transit timing variations and fitting a new ephemeris to transits of TrES-1 b. *J. Kor. Astron. Soc.* **55** (2022), 111–121.

Selected Research Projects

UMN Complex Systems REU   *Summer 2024*
Advisor: Arnd Scheel · Mentors: Olivia Clifton, Angel Chavez
Analytically investigated particle behavior and conditions for vacuum formation in the continuum limit of a model of collective motion. Joint work with A. Madrigal and A. Warren led to a paper submitted to *JNW* and JMM presentation.
Leiden University Patterns and PDEs REU   *Summer 2023*
Advisors: Paul Carter, Arjen Doelman
Studied interface dynamics in a reaction–diffusion model of tumor invasion, focusing on deformation mechanisms and stability. Joint work with D. Levy and E. Okey led to a publication in *J. Math. Biol.* and JMM presentation.
MIT Department of Earth, Atmospheric, and Planetary Sciences   *Fall 2023 – Spring 2025*
Advisor: Daniel Rothman · Mentor: Perrin Davidson
Researched dynamics of interacting climate tipping elements, e.g. Amazon rainforest dieback and polar ice sheet collapse, with emphasis on threshold behavior and coupling effects. Results presented at AGU 2024.

Talks & Presentations

Joint Mathematics Meetings (Undergraduate Poster Session)   *Jan 2025*
"Bubbles and Fissures: Gap Formation in a Two-Dimensional Swarm Model"
American Geophysical Union Annual Meeting   *Dec 2024*
"Dynamics in a Model for Interacting Tipping Elements in the Climate System"
Joint Mathematics Meetings (AMS Session on ODEs & Dynamical Systems)   *Jan 2024*
"Front Dynamics in a Reaction–Diffusion Model for Tumor Growth"

Honors & Fellowships

GAANN Fellowship, U.S. Department of Education   *2025*
Mark Feshbach Fellowship, University of Minnesota   *2025*
NSF Graduate Research Fellowship Program Honorable Mention   *2025*
MIT Climate and Sustainability Research Scholar   *2023*

Teaching Experience

Graduate Teaching Assistant, Calculus I (Math 1271), University of Minnesota   *Fall 2025*
Undergraduate Assistant, Real Analysis (18.100B), MIT   *Spring 2025*
Grader, Theory of Probability (18.675), MIT   *Fall 2024*
Grader, Real Analysis (18.100B), MIT   *Spring 2024*
Undergraduate Assistant, Logic and Set Theory (18.510), MIT   *Fall 2023*

Service

UMN Mathematics Directed Reading Program, Mentor   *Fall 2025*
Program in Mathematics for Young Scientists (PROMYS), Counselor   *Summer 2025*