Thomas Concannon

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Education

- **Purdue University** — West Lafayette, IN
  Bachelor of Science in Computer Engineering; GPA: 3.96 — *Aug. 2022 – May. 2026*

Experience

- **Purdue Academic Success Center** — West Lafayette, IN
  Supplemental Instruction Leader for Electrical Engineering Fundamentals II — *Starting August 2024*
  - **Program Overview**: Begin an SI Leader involves leading peer-collaboration group study sessions for challenging courses, leveraging experience from having previously taken the course.
  - **Facilitation**: Attend all lectures for the assigned SI course to stay updated on course material and effectively guide students. Facilitate three sessions each week, providing a structured environment for students to learn successfully.
  - **Planning**: Develop and organize session plans tailored to reinforce course content and address student needs. Prepare materials and activities that promote active learning and collaboration among peers.
  - **Session Structure**: Sessions consist of practice problems for groups to struggle with and work out amongst themselves.
- **Rogers Imaging Corporation** — Natick, MA
  Summer Intern — *Summer 2024*
  - **Genetic Analysis Project**: Created a predictive tool to analyze individuals' genetic material, assess disorder risks, and suggest treatment plans.
  - **Libraries Utilized**: Utilized Python, NetworkX, and Plotly for developing and visualizing 3D interactive graphs of protein interactomes.
  - **Visualization and Analysis**: Implemented visualizations of complex protein interactomes and used various closeness, betweenness, and eigenvalue centrality algorithms to identify the most direct proteins to the network.
  - **Skills Developed**: Enhanced proficiency with Python and R, gained experience in network and functional analysis.
- **AD RayOptics** — West Lafayette, IN
  Undergraduate Research Assistant — *Aug 2023 - Present*
  - **Software Description**: An efficient framework for differentiable ray tracing using Python Ray Optics Library and Google Jax. Ideal for computational imaging and photography.
  - **3D Visualization**: Added 3D compatibility to the program in place, offering interactive and customizable plots. Developed a variety of example uses for GitHub.
  - **Iterative Visual**: Created a visually appealing and easy to use function to visualize the process of sequential lens model auto differentiation optimization process.
  - **AD Adaptations**: Optimized functions to work cohesively with updated rendering methods. Pulled and modified code from original package to update necessary segments with program advancements.
- **Purdue Physics and ECE Departments** — West Lafayette, IN
  Undergraduate Teaching Assistant — *Jan 2023 - May 2024*
  - **Physics TA**: Assisted in leading the entry-level physics classrooms. Fostered group engagement by playing an active role in students' learning environment.
  - **Digital Design Lab TA**: Supported students struggling with breadboard design in digital logic circuits. Guided students in debugging and optimizing Verilog code, enhancing their learning experience.

Personal Projects

- **Personal Website**: A portfolio giving a more in depth look at projects worked on and other experiences.
- **Graph Playground**: Graph visualization tool to aid students in comprehension of popular algorithms.
- **Particle Life**: A computational art project that simulates interactions between particles based on randomized forces.

Programming Skills

- **Languages**: Python, C, C++, JavaScript, HTML, CSS, SystemVerilog