Thomas Concannon

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Education

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

Experience

- **Rogers Imaging Corporation** — Natick, MA
  Summer Intern — *Summer 2024*
  - **Genetic Analysis Project**: Built a predictive analysis tool used to analyze an individuals genome information, assess specific disorder risks using SNP data, and suggest possible treatment plans.
  - **Frameworks Utilized**: Utilized R, Python, igraph, NetworkX, and Plotly for graphing, executing algorithms, and visualizing 3D interactive plots of protein interactomes.
  - **Visualization and Analysis**: Implemented visualizations of complex protein interactomes and used various centrality algorithms to identify the most crucial proteins to the interactome.
  - **Skills Developed**: Enhanced proficiency in Python and R, graph theory, and predictive and functional analysis.
- **AD RayOptics** — West Lafayette, IN
  Undergraduate Research Assistant — *Aug 2023 - May 2024*
  - **Software Description**: AD RayOptics is an efficient framework for differentiable ray tracing using Python Ray Optics Library and Google Jax. Ideal for computational imaging and photography.
  - **3D Visualization**: Implemented 3D compatibility to the program in place, offering interactive and user-customizable plots. Created a variety of example uses for GitHub.
  - **Iterative Visual**: Developed a visually appealing and easy to use function to visualize the process of the sequential lens model auto differentiation optimization process.
  - **AD Adaptations**: Integrated functions to work cohesively with updated rendering methods. Pulled and modified code from original package to update necessary segments with program advancements.

Extra Curriculars

- **Purdue Academic Success Center** — West Lafayette, IN
  Supplemental Instruction Leader for Electrical Engineering Fundamentals II — *August 2024 - Present*
  - **Program Overview**: Being an SI Leader involves leading peer-collaboration group study sessions for challenging courses, leveraging experience from having previously taken the course.
  - **Facilitation**: Facilitate two in-person sessions each week, providing a structured environment for students to learn and collaborate 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 work out amongst themselves.
- **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 and sandbox tool to aid students in comprehension of graphing algorithms.
- **Particle Life**: A computational art project that simulates interactions between particles based on randomized forces.
- **IceBreak**: IceBreak uses AI to find compatible users within social organizations/events derived from their interests.

Programming Skills

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