# Eliezer Amponsah

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## My Summary

I am a second-year PhD student co-advised by Professor Ananth Grama and Professor Vamsi Addanki. My background is in computer systems, particularly network and distributed systems. My research focus is in photonic interconnects, mixture-of-experts, and parallel systems algorithms. I currently work in algorithms for optical circuit switching and distributed training.

## Education

**PhD Computer Science** at **Purdue University, West Lafayette** Aug 2025 - present
**Research Focus:** Photonic Interconnects, Distributed training and Parallel Systems.

– *Research Seminar Course Paper* – Proposed a semi-oblivious, online algorithm for RotorNet to better match data centre demand; established a theoretical lower-bound relative to baseline RotorNet. Unpublished course deliverable.

**Bachelor of Science (Computer Science)** at **Michigan State University** Aug 2021 - May 2025
**Minor:** Communication Arts and Sciences - Game Design.

– *Honors Research Scholar* – Acknowledged contributor: implemented a conditional lock-free, distributed linked list with Raaghav Ravishankar and Dr. Sandeep Kulkarni; accepted to IEEE SRDS 2026.
– *Poster Presentation, MiDSURE '23* – Summer Research Opportunity Program (SROP): facilitated software development for data collection and analysis, and implemented a new formula that over-estimated results by 40.6% while preserving ground truth trends.

## Work Experience

**Software Engineer Intern – Magna Inc. (CSE Capstone)** Sep 2024 - Dec 2024
– Worked with a team of 5 others to develop a testing framework for Magna developers
– Built a CI/CD pipeline using GitHub Actions and Workflows with CppUTest to automatically trigger tests
– Delivered work and documentation to Magna engineering leads

**Teaching Assistant & Academic Coach** Jul 2024 - Aug 2024, Jul 2025 - Aug 2025
**MSU Engineering and Science Success Academy (ESSA)**
– Teach and assist in creating and administering lesson plans in Computer Science and Maths for incoming Engineering students at MSU
– Provide office hours and individualised lesson plans for students

**Peer Tutor – Michigan State University, TRIO SSS** Aug 2022 - May 2025
– Tutored students in Calculus I–III, Python, C/C++, and Physics
– Received consistently excellent evaluations for clarity, patience, and instructional quality

## Publications

Amponsah, Eliezer and Vamsi Addanki (2026). "Birkhoff Decompositions and Photonic Interconnects Wait! Don't Forget the Compute!" In: *Proceedings of the SIGCOMM Workshop on Hot Topics in Optical Technologies and Applications in Networking (HotOptics '26)*. Denver, Colorado, USA. DOI: 10.1145/3789240.3822610.

Amponsah, Eliezer, Deeksha P Rao, and Vamsi Addanki (2026). "Tetris: Circuit Scheduling for Rearrangeably Non-Blocking Photonic Interconnects". In: *arXiv preprint arXiv:2609.25434*. URL: https://arxiv.org/abs/2609.25434.

## Services

**CS Graduate Student Body Outreach Coordinator** Aug 2026 – Present
*Purdue University* *West Lafayette, IN*

Coordinate outreach events connecting CS graduate students with prospective students and the wider department.

**CS Graduate Student Body General Member** Aug 2025 – Aug 2026
*Purdue University* *West Lafayette, IN*

## Personal Projects

**EZ-Conditions** Repo | Jul 2024 - Present

– Solo personal project to create a Unity Dev-Tool that allows developers to utilise existing functions within their project as conditional methods for other objects using C# reflections and custom attributes

– Focused on optimisation by utilising an LRU Cache and delegating most tasks to compile time to reduce reflection calls

**Brava Games Studio** Site | Jun 2024 - Present

– Remote Programming Director, Systems and Architecture Engineer for startup games company with a few friends using Unity and C#

– Main systems engineer and mentor to other programmers on the team

**Subtlety of Sanguinare Vampiris Revamped (Game Mod)** Nexus Mods | May 2022 - Aug 2022

– Solo project to develop an enhancement to the popular Bethesda Game, Skyrim, utilising Papyrus

– Utilised Event Driven Programming structures to focus on as few update calls as possible