JOSUE TORRES-FONSECA

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EDUCATION

Doctor of Philosophy in Computer Science and Engineering — **Expected May 2028**
University of Michigan, Ann Arbor, MI — **GPA: 4.0**

M.S. Computer Science and Engineering, — **Graduated May 2025**
University of Michigan, Ann Arbor, MI — **GPA: 4.0**

B.S. Computer Science, Minor: Applied Mathematics — **Graduated May 2023**
Boise State University, Boise, ID — **GPA 3.889; *Magna Cum Laude***

QUALIFICATIONS

- Computer programming in proficiency in Python and Java
- Working knowledge of C#, SQL, Javascript and Git
- Effective problem solving and debugging skills
- Knowledgeable on data structures and algorithms
- Experience with machine learning libraries in python including PyTorch, Numpy, and Pandas
- Experience with Vision Language Models and Large Language Models
- Experience with agile development
- Ability to work on a team and effective communication skills

WORK EXPERIENCE

University of Michigan — Graduate Researcher — **August 2023-Present**

- Supervised by Dr. Joyce Chai
- Created a safety-centric dataset using PDDL to generate trajectories that demonstrate how to complete household tasks while mitigating encountered hazards rendered within the AI2-Thor simulator
- Evaluated 11 state-of-the-art VLMs on their ability to recognize hazards via visual question answering and generate safe plans to complete household tasks through proactive hazard mitigation within the AI2-THOR simulator
- Developed a decoupled multi-agent framework that separated hazard recognition from task execution, resulting in an increase in safety-planning success rates
- Submitted paper that is in review at Association of Computational Linguistics 2026

Boise State University — Undergraduate Research Assistant — **August 2021-August 2023**

- Published and presented two papers at Machine Learning conferences
- Designed and built an incremental spoken dialogue system capable of transcribing and understanding speech, detecting, and learning about objects, and mapping objects in its environment using SLAM
- Maintained and controlled robots using a Python SDK
- Gathered data from research participants
- Organized and analyzed gathered data

Massachusetts Institute of Technology — Undergraduate Research Assistant — **May 2022-November 2022**

- Helped mentor with natural language processing research regarding interpretable machine learning
- Created new MILAN pipeline that requires less training data
- Prepared presentations about findings and present to other interns and faculty

Paylocity Software Engineer Intern **May 2021-August 2021**

- Contributed to the development of software through the software lifecycle as a part of a 13-member team
- Worked with product owners and leads to understand use cases and develop them into features
- Designed, developed, tested and deployed new features in project releases
- Leveraged and obtained familiarity with software development methodologies: Agile and Scrum
- Leveraged and obtained knowledge in Full Stack Web development including Javascript, React/Redux, C#, .Net framework, SQL and Git

Boise State University Tutor **August 2020-May 2021**

- Worked with students to enhance their understanding of topics discussed in class
- Debugged code quickly and efficiently
- Ensured all students understand their assignments and the "why" behind their code
- Built professional and peer relationships with staff and students respectively

Texas State University Undergraduate Research Assistant **June 2020-August 2020**

- Helped mentor with research about using game theory to protect cyber physical systems
- Programmed in Python to help set up the environment needed to gather data
- Prepared presentations to introduce research and final findings to REU participants and organizers
- Prepared research paper to present final findings of research to REU participants and organizers

Boise State University Lab Assistant **August 2020-December 2020**

- Helped students with electrical engineering labs and answered questions
- Helped students understand concepts and/or finish electrical engineering labs
- Assisted professor in grading papers

ORGANIZATIONS

- **Treasurer, *Computer Science and Engineering Graduate Students*** **August 2024-May 2025**
  - Managed organization funds
  - Assisted in organizing events

- **President, *AI Club*** **August 2021-May 2023**
  - Facilitated a variety of professional development and technical development workshops such as; python, machine learning, and data science
  - Gathered and managed club funds

- **President, *Competitive Cybersecurity and Cyber-Physical Club*** **August 2019-May 2022**
  - Participated in CyberForce Competition, at INL (46^{th} out of 103 teams) (Fall 2019)
  - Presented on cybersecurity topics such as data scraping, and reverse engineering with Ghidra
  - Lead Capture the Flag activities to help members gain foundational cybersecurity knowledge