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

Master of Science in Computer Science and Engineering **Graduated May 2025**
University of Michigan, Ann Arbor, MI GPA: 4.0

Bachelor of Science in Computer Science, *Minor: Applied Mathematics* **Graduated May 2023**
Boise State University, Boise, ID GPA: 3.889, *Magna Cum Laude*

TECHNICAL SKILLS

Python, LLMs, VLMs, PDDL, PyTorch, NumPy, Pandas, Matplotlib

WORK EXPERIENCE

PhD Candidate, ***Situated Language and Embodied Dialogue Group*** **Aug 2023 – Present**
University of Michigan, Computer Science and Engineering Division

- Supervised by Dr. Joyce Chai
- Created a safety-centric dataset using PDDL to generate trajectories demonstrating how to complete household tasks while mitigating hazards rendered in the AI2-Thor simulator
- Evaluated 11 state-of-the-art VLMs on hazard recognition via Visual Question Answering (VQA) and safe plan generation as an embodied agent performing household tasks while proactively mitigating hazards in AI2-THOR
- Developed a decoupled multi-agent framework that separated hazard recognition from task execution, resulting in increased safety-planning success rates
- Accepted to Findings of the Association for Computational Linguistics 2026

Undergraduate Researcher, ***Speech Language and Interactive Machines Group*** **Aug 2021 – Aug 2023**
Boise State University, Department of Computer Science

- Supervised by Dr. Casey Kennington
- Project 2:
  - Designed and built an incremental spoken dialogue system capable of transcribing and understanding speech, detecting, and gaining a concrete understanding of objects, and mapping objects in its environment using SLAM and the Anki Cozmo robot
  - Gathered spoken interaction data from participants to evaluate the dialogue system
  - Processed and analyzed gathered data
  - Presented at Special Interest Group on Discourse and Dialogue (SIGdial) 2022
- Project 1:
  - Gathered human appraisals and descriptions of robot emotional behaviors from participants
  - Processed and analyzed gathered data
  - Presented at Language Resources and Evaluation Conference (LREC) 2022

Undergraduate Researcher, ***Language & Intelligence Group*** **May 2022 – Nov 2022**
Massachusetts Institute of Technology, Deptartment of Electrical Engineering and Computer Science

- Supervised by Dr. Jacob Andreas
- Designed and built an interpretable ML model providing neuron annotations using no data
- Presented poster at MIT Summer Research Program poster session
- Delivered lightning talk on MIT Grad Diversity YouTube channel

Software Engineer Intern **May 2021 – Aug 2021**
Paylocity

- Contributed to software development across the full lifecycle as part of a 13-member team
- Worked with product owners and leads to translate use cases into features
- Designed, developed, tested, and deployed new features in project releases
- Applied Agile and Scrum methodologies; gained full-stack experience with JavaScript, React/Redux, C#, .NET, SQL, and Git

Undergraduate Researcher, *Intelligent Security Group* **June 2020 – Aug 2020**
Texas State University, Department of Computer Science

- Supervised by Dr. Mina Guirguis; funded by NSF as a Smart & Connected Communities REU site
- Designed and built a game and reward system to secure a simulated water tank using game theory
- Simulated and secured a water tank with check blocks acting as both an intrusion detection and prevention system
- Prepared presentations on research findings for REU participants and organizers
- Prepared report to present final findings of research to REU participants and organizers

TEACHING EXPERIENCE

Tutor, *Operating Systems* **Jan 2023 – May 2023**
Boise State University, Department of Computer Science

- Taught students how concepts in class apply to their programming assignments
- Educated students on how concepts taught in class may be used in industry settings
- Assisted students in planning out and debugging their programming assignments

Tutor, *Introduction to Theory of Computation* **Jan 2021 – May 2021**
Boise State University, Department of Computer Science

- Assisted students by guiding them through their assignments
- Facilitated individual and group tutoring sessions

Tutor, *Data Structures* **Aug 2020 – Dec 2020**
Boise State University, Department of Computer Science

- Worked with students to enhance their understanding of topics discussed in class
- Guided students through debugging their code and understanding how their code worked
- Communicated and effectively explained the purpose of data structures and how they worked

Lab Assistant, *Microprocessors* **Aug 2020 – Dec 2020**
Boise State University, Department of Electrical and Computer Engineering

- Guided students through lab work and debugging hardware and software issues
- Helped students understand concepts related to the labs and how the labs demonstrated these concepts
- Assisted professor in grading papers

CONFERENCES & PRESENTATIONS

rrSDS 2.0: Incremental, Modular, Distributed, Multimodal Spoken Dialogue with Robotic Platforms Aug 2025
Conference Paper

- **Special Interest Group on Discourse and Dialogue**, Avignon, France
- *Anna Manaseryan, Porter Rigby, Brooke Matthews, Catherine Henry, Josue Torres-Fonseca, Ryan Whetten, Enoch Levandovsky, and Casey Kennington. 2025. rrSDS 2.0: Incremental, Modular, Distributed, Multimodal Spoken*

Dialogue with Robotic Platforms. In Proceedings of the 26th Annual Meeting of the Special Interest Group on Discourse and Dialogue, pages 637–640, Avignon, France. Association for Computational Linguistics.

Symbol and Communicative Grounding through Object Permanence with a Mobile Robot **Sept 2022**
Conference Presentation and Paper

- **Special Interest Group on Discourse and Dialogue**, Edinburgh, Scotland
- *Josue Torres-Fonseca, Catherine Henry, and Casey Kennington. 2022. Symbol and Communicative Grounding through Object Permanence with a Mobile Robot. In Proceedings of the 23rd Annual Meeting of the Special Interest Group on Discourse and Dialogue, pages 124–134, Edinburgh, UK. Association for Computational Linguistics.*

HADREB: Human Appraisals and (English) Descriptions of Robot Emotional Behaviors **June 2022**
Video Presentation and Paper

- **Language Resources and Evaluation Conference**, Marseille, France
- *Josue Torres-Fonseca and Casey Kennington. 2022. HADREB: Human Appraisals and (English) Descriptions of Robot Emotional Behaviors. In Proceedings of the Thirteenth Language Resources and Evaluation Conference, pages 5739–5748, Marseille, France. European Language Resources Association.*

HONORS & AWARDS

Gemini Academic Program Award	**($10,000)**	**Spring 2026 – Spring 2027**
NSF Graduate Research Fellowship	**($159,000)**	**Fall 2023 – Spring 2028**
Dean's List		**Fall 2018 – Spring 2023**
Boise State University Top Ten Scholar		**Spring 2023**
Barry M. Goldwater Scholarship	**($7,500)**	**Fall 2022 – Spring 2023**
Federal Employee Education & Assistance Fund Scholarship	**($1,000)**	**Fall 2018**

ORGANIZATIONS

Treasurer, *Computer Science and Engineering Graduate Students* **Fall 2024 – Spring 2025**

- Managed organization funds
- Assisted in organizing events

President, *Artificial Intelligence Club* **Fall 2024 – Spring 2025**

- Facilitated a variety of professional development and technical development workshops about Python, machine learning, and data science

President, *Competitive Cybersecurity and Cyber-Physical Club* **Fall 2019 – Spring 2022**

- Participated in CyberForce Competition at INL (46th out of 103 teams, Fall 2019)
- Presented on cybersecurity topics including data scraping and reverse engineering with Ghidra
- Led Capture the Flag activities to build foundational cybersecurity knowledge among members