

Research Interests

Advancing human-AI collaboration through the development of interactive, socially adaptive robots. Focusing on robot learning via multimodal systems, reinforcement learning, and human feedback.

Education

- 2026–2027 **Georgia Institute of Technology, College of Computing**, Atlanta, Georgia USA
GPA N/A M.S. in Computer Science, Specialization in Computational Perception and Robotics (In Progress)
- 2021–2025 **Washington State University, Honors College**, Pullman, Washington USA
GPA 3.94 B.S. in Computer Science, Minor in Mathematics with Summa Cum Laude
Senior Design Project: [Retrieval-Augmented Generation \(RAG\) using Knowledge Graphs and Vector Search](#)

Honors & Awards

- 2023 **CS Research Mentorship Program Scholar, Google Research**
Accepted to a three-month program that matches students with Google mentors and peers to support their pursuit of computer science research pathways.
- 2023 **Generation Google Scholarship**
Awarded based on the strength of each candidate's commitment to diversity, equity, and inclusion, demonstrated leadership, and academic performance.
- 2023 **National Institute of Health Fellowship - MARC**
NIH-funded opportunity for undergraduate students from underrepresented backgrounds to embark on a two-year scientific research program, leadership development, and graduate-school preparation.
- 2021 **National Institute of Health Fellowship - ESTEEMED MIRA**
NIH-funded unique opportunity for undergraduate students from underrepresented groups planning to major in biomedical science and engineering fields.

Conference Publications

- [1] **Social Triangles and Aggressive Lines: Multi-Robot Formations Impact Navigation and Approach**
A. Bacula, **E. Villalovoz**, D. Flynn, A. Mehta, H. Knight
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2023

Professional Experiences

- Summer 2025 **Meta**, Remote USA
[Production Engineering Fellow](#), Advised by Alexandre Maciel, Kush Desai
Deployed a full-stack Flask app with Docker on DigitalOcean, integrating MySQL and Nginx, automating CI/CD to cut release time by 80%, and adding Prometheus/Grafana monitoring for reliable performance.
- 2023–2024 **Washington State University**, Pullman, Washington USA
[Undergraduate Research Assistant](#), Advised by [Janardhan Rao Doppa](#), [Haipeng Cai](#)
Analyzed security vulnerabilities in LLM-generated code and applied Bayesian optimization to enhance prompt accuracy for secure and functionally correct code generation.
- Summer 2024 **Carnegie Mellon University**, Pittsburgh, Pennsylvania USA
[Robotics Institute Summer Scholar](#), Advised by [Henny Admoni](#)
Developed hierarchical reward learning systems leveraging Bayesian inference and human feedback to align autonomous systems with human preferences and improve adaptability in dynamic settings.
- Summer 2023 **Google**, Sunnyvale, California USA
[Software Engineering Intern \(STEP\)](#), Advised by Arun Tej Chennadi, Paul Valdez
Optimized internal database processes with C++ and SQL, reducing runtime by 66% and enhancing data visualization through real-time dashboards and dynamic graphs.

Summer 2022 **Oregon State University**, Corvallis, Oregon USA
[Robots in the Real World](#), Advised by [Heather Knight](#)
Developed geometric features for multi-robot expressive motion, integrating performing arts techniques to enhance robot character and intelligence.

Teaching

Spring 2025 **CPT_S 315: Introduction to Data Mining** WSU
Undergraduate Teaching Assistant

Fall 2024 **CPT_S 350: Design and Analysis of Algorithms** WSU
Undergraduate Teaching Assistant

Fall 2023 **CPT_S 355: Programming Language Design** WSU
Undergraduate Teaching Assistant

Fall 2022 **CPT_S 121: Program Design and Development C/C++** WSU
Undergraduate Teaching Assistant

Outreach

Summer 2025 **WSU MARC & MIRA Program Alumni Speaker and Mentor** WSU
Invited to present to undergraduate researchers about the graduate school application process. Shared personal experiences, strategies for overcoming rejections, and actionable advice for pursuing research opportunities.

2022–2024 **WSU VCEA Voiland College Ambassador** WSU
Represented and connected Voiland College with industry, alumni, and prospective students, sharing unique experiences and perspectives to promote the college's mission and transformative impact.

Summer 2024 **CMU RISS RoboLaunch Website Coordinator** CMU
An initiative to explore the world of robotics through a series of talks and interactive workshops. Responsible for updating the website to ensure accessibility and provide up-to-date information.

2021–2023 **WSU Responsibility Opportunity Advocacy Respect (ROAR) Peer Ally** WSU
Collaborated with ROAR students by providing support in attending classes, facilitating social integration, participating in university events, and fostering inclusive experiences.

Technical Skills

Programming Languages

Python, C/C++, SQL, JavaScript, TypeScript, HTML/CSS, C#, MATLAB, R, Haskell, Swift

Developer Tools

Git, GitHub, GitLab, Docker, Conda, VS Code, Rider, CLion, PyCharm, RStudio, Google Colab, LaTeX, DigitalOcean, Xcode, AWS, Ollama, Unsloth, Vercel, Ngrok, Clerk, SQLite, MLflow, CI/CD, DVC, Postman, MySQL, Jupyter, Bash, GitHub Actions

Technologies/Frameworks

React, PyTorch, TensorFlow, scikit-learn, NumPy, Pandas, Matplotlib, Seaborn, Flask, Jinja2, OpenAI Gym, Avalonia, .NET, Leaflet.js, Next.js, Tailwind CSS, Robot Operating System, Linux, Hugging Face Transformers, REST API, FastAPI, SQLAlchemy, Pydantic, React Router, Vite, face_recognition, OpenCV, LangChain, LangGraph, Firecrawl, WordCloud, NLTK, Node.js