Ethan Villalovoz

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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 & Major League Hacking**, 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
REU Fellow, 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** WSU
Alumni Speaker and Mentor
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** WSU
Voiland College Ambassador
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** CMU
Website Coordinator
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)** WSU
Peer Ally
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