Jacob Krantz

Email: jkrantz989@gmail.com
Web: jacobkrantz.github.io
LinkedIn: linkedin.com/in/jacob-krantz

Summary

I build embodied artificial intelligence. I work on **perception** (scene understanding, long-horizon tracking), **task planning** (LLMs, imitation, reinforcement learning, exploration), and the full **data lifecycle** thereof (curation, pipelining, benchmarking). I publish in vision and learning venues such as CVPR and ICLR. My works have been reported on by Tech Crunch and demoed at the White House Correspondents' Dinner.

Education

Ph.D. in Computer Science, Oregon State University 2019–2023
Advised by Stefan Lee

B.Sc. in Computer Science, Gonzaga University 2015–2019
Magna Cum Laude. Minor in Physics.

Professional Experience

Senior Research Scientist, FAIR Labs @ Meta Platforms Jan 2024–*Current*
Menlo Park, CA
Under Roozbeh Mottaghi and Jitendra Malik

- Led VLM training for embodied perception + memory using egocentric videos [internal].
- Trained LLMs to solve robot task planning from language ("*Tidy up the living room*") after collecting 100,000 human demonstrations [internal].
- Unlocked scaling of task generation to enable PARTNR to become the largest human-robot collaboration benchmark. I designed the eval engine and owned the analysis and delivery of all datasets.
- Managed interns and collaborated XFN with product design and UX research.

Research Intern, FAIR Labs @ Meta Platforms Jun–Dec 2022
Menlo Park, CA
Advised by Devendra Singh Chaplot

Research Intern, FAIR Labs @ Meta Platforms Aug–Feb 2021
Menlo Park, CA
Advised by Oleksandr Maksymets

NSF REU Fellow, University of Colorado, Colorado Springs May–Aug 2018
Colorado Springs, CO
Advised by Jugal Kalita

Data Analytics Intern, Faithlife Corporation May–Aug 2017
Bellingham, WA

Publications

Peer-Reviewed Conference Papers

Planning with an Embodied Learnable Memory.
P. Parashar, **J. Krantz**, M. Chang, K. Shah, X. Puig, R. Mottaghi
To appear: *International Conference on Learning Representations (ICLR)*, 2026.
OpenReview:pre-print [28%]

Do Visual Imaginations Improve Vision-and-Language Navigation Agents?
A. Perincherry, **J. Krantz**, S. Lee.
In *Computer Vision and Pattern Recognition (CVPR)*, 2025.
arXiv:2503.16394 [22%]

PARTNR: A Benchmark for Planning and Reasoning in Embodied Multi-agent Tasks.
M. Chang, G. Chhablani, A. Clegg, M.D. Cote, R. Desai, . Hlavac, V. Karashchuk,
J. Krantz, R. Mottaghi, P. Parashar, S. Patki, I. Prasad, X. Puig, A. Rai, R. Ramrakhya,
D. Tran, J. Truong, J. Turner, E. Undersander, T. Yang.
In *International Conference on Learning Representations (ICLR)*, 2025.
arXiv:2411.00081 [32%]

Navigating to Objects Specified by Images.
J. Krantz, T. Gervet, K. Yadav, A. Wang, C. Paxton,
R. Mottaghi, D. Batra, J. Malik, S. Lee, D.S. Chaplot.
In *International Conference on Computer Vision (ICCV)*, 2023.
arXiv:2304.01192 [26%]

Iterative Vision-and-Language Navigation.
J. Krantz*, S. Banerjee*, W. Zhu, J. Corso, P. Anderson, S. Lee, J. Thomason.
In *Computer Vision and Pattern Recognition (CVPR)*, 2023.
arXiv:2210.03087 [26%]

Sim-2-Sim Transfer for Vision-and-Language Navigation in Continuous Environments.
J. Krantz, S. Lee.
In *European Conference on Computer Vision (ECCV)*, 2022.
arXiv:2110.02207

Waypoint Models for Instruction-guided Navigation in Continuous Environments.
J. Krantz, A. Gokaslan, D. Batra, S. Lee, O. Maksymets.
In *International Conference on Computer Vision (ICCV)*, 2021.
arXiv:2110.02207 [Oral: 210/6236 = top 3.3%]

Where Are You? Localization from Embodied Dialog.
M. Hahn, **J. Krantz**, D. Batra, D. Parikh, M. Rehg, S. Lee, P. Anderson.
In *Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2020.
arXiv:2011.08277 [25%]

Beyond the Nav-Graph: Vision-and-Language Navigation in Continuous Environments.
J. Krantz, E. Wijmans, A. Majumdar, D. Batra, S. Lee.
In: *European Conference on Computer Vision (ECCV)*, 2020.
arXiv:2004.02857 [27%]

Language-Agnostic Syllabification with Neural Sequence Labeling.
J. Krantz, M. Dulin, P. De Palma.
In *IEEE International Conference on Machine Learning and Applications (ICMLA)*, 2019.
arXiv:1909.13362 [Oral: 14%]

Abstractive Summarization Using Attentive Neural Techniques.
J. Krantz, J. Kalita.
In *International Conference on Natural Language Processing (ICON)*, 2018.
arXiv:1810.08838 [Oral: 9%]

Syllabification by Phone Categorization.
J. Krantz, M. Dulin, P. De Palma, M. VanDam.
In *ACM Genetic and Evolutionary Computation Conference Companion (GECCO)*, 2018.
arXiv:1807.05518

In Review

Asymmetric On-Policy Distillation can solve POMDPs.
S. Poddar, **J. Krantz**, M. Chang, X. Puig, R. Mottaghi, N. Jaques, A. Gupta

Technical Reports

Instance-Specific Image Goal Navigation: Training Embodied Agents to Find Object Instances.
J. Krantz, S. Lee, J. Malik, D. Batra, D.S. Chaplot.
arXiv Preprint, 2022.
arXiv:2211.15876

Retrospectives on the Embodied AI Workshop.
M. Deitke, D. Batra, Y. Bisk, T. Campari, A. Chang, D. Chaplot, C. Chen, C. D'Arpino, K. Ehsani, A. Farhadi, F. Li, A. Francis, C. Gan, K. Grauman, D. Hall, W. Han, U. Jain, A. Kembhavi, **J. Krantz**, S. Lee, C. Li, S. Majumder, O. Maksymets, R. Martín-Martín, R. Mottaghi, S. Raychaudhuri, M. Roberts, S. Savarese, M. Savva, M. Shridhar, N. Sünderhauf, A. Szot, B. Talbot, J. Tenenbaum, J. Thomason, A. Toshev, J. Truong, L. Weihs, J. Wu
arXiv Preprint, 2022.
arXiv:2210.06849

Ph.D. Dissertation

Semantic Embodied Navigation: Developing Agents That Navigate From Language and Vision.
J. Krantz.
In *Oregon State University*, 2023.
ScholarsArchive:n583z3248

Invited Talks

Embodied Agents for the Open World: Pursuing Generalization through Home Robotics. Jan 2026
Apple Machine Learning Research

Human-Aware Embodied Intelligence: Performing Household Tasks For and With Humans. Dec 2025
Meta Reality Labs

Human-Robot Collaboration for Everyday Household Tasks. Mar 2025
Oregon State University AI Seminar

Semantic Embodied Navigation: Developing Agents That Navigate From Language and Vision. Sep 2023
Boston Dynamics AI Institute
FAIR Labs, Meta Platforms

Advised Students

Sriyash Poddar (UW PhD Student, FAIR Research Intern) Jun– Dec 2025
Project: Asymmetric On-Policy Distillation can solve POMDPs.

Gunjan Chhablani (Georgia Tech MS Student, FAIR) Next: Waymo Jun– Dec 2024
Project: Visualizing and verifying task planning datasets with PrediViz.

Professional Activities

Workshop Organization

Human-aware Embodied AI Workshop (HEAI) at IROS 2025

FAIR Habitat Challenge at the CVPR Embodied AI Workshop 2023

RxR-Habitat Challenge at the CVPR Embodied AI Workshop 2021,2022,2023

Visually Grounded Interaction and Language Workshop (ViGIL) at NAACL 2021

Service

Design Advisory Board Member 2021–2026
Center for Engineering Design & Entrepreneurship (CEDE), Gonzaga University

AI Application Support Program (AIASP) Mentor 2023
Guidance to historically underrepresented groups interested in graduate programs

Reviewing

Computer Vision and Pattern Recognition (CVPR)	2024, 2025, 2026
IEEE Robotics and Automation Letters (RA-L)	2023, 2026
Winter Conference on Applications of Computer Vision (WACV)	2026
Pattern Recognition Letters	2025
Workshop on Space in Vision, Language, and Embodied AI (SpaVLE; NeurIPS)	2025
Robotics: Science and Systems (RSS)	2025
IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)	2023, 2024, 2025
International Journal of Computer Vision (IJCV)	2024
Workshop on Spatial Language Understanding and Grounded Communication for Robotics (SPLU-RoboNLP; ACL)	2021, 2023, 2024
Neural Information Processing Systems (NeurIPS)	2021, 2023
Journal of Artificial Intelligence Research (JAIR)	2023
International Conference on Robotics and Automation (ICRA)	2022, 2023
Association for Computational Linguistics Rolling Review (ARR)	2022

Open Source

PARTNR-Planner (0.3k stars)
A repository accompanying the PARTNR benchmark for using Large planning models (LPMs) to solve robot instruction following tasks and human-robot collaboration in the Habitat simulator.

Home Robot (1.2k stars)
Contributed demo code for an agent that can perform Image Goal Navigation on real-world robotic hardware (Hello Robot Stretch; 2023). Home Robot is built and maintained by FAIR at Meta.

AI Habitat (2.8k stars)
Contributed Vision-and-Language Navigation (2020) and Instance ImageGoal Navigation (2022) to Habitat Lab. Habitat is built and maintained by FAIR at Meta.

VLN-CE (0.7k stars)
Developer and maintainer of the Vision-and-Language Navigation in Continuous Environments task, challenge, and baselines.

Abstracts and Presentations

Beyond the Nav-Graph: Vision-and-Language Navigation in Continuous Environments Extended Abstract.
J. Krantz, E. Wijmans, A. Majumdar, D. Batra, S. Lee.
In: *Language in Reinforcement Learning (LaReL) Workshop at ICML*, 2020.

Probabilistic Syllabification of English Words.
J. Krantz, M. Dulin.
In: *Spokane Intercollegiate Research Conference (SIRC)*, 2017.
Best Presentation Award. [1/75=1.3%]

Teaching

Theory of Computation (CS 321). Teaching Assistant.	Fall 2019
Artificial Intelligence (CS 427). Teaching Assistant.	Spring 2018, Spring 2019
Natural Language Processing (CS 475). Teaching Assistant.	Fall 2018