Jake Brawer

Personal Data

Ph.D.:	6th Year
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Research overview

Summary — I build **human–robot collaborative systems** that learn through their interactions with people. My research draws upon recent innovations in machine learning as well as foundational techniques in artificial intelligence for designing systems that learn and reason in a **transparent** and **robust** way.

Education

2016-Current	**Ph.D. in Computer Science** Yale University, Advisor: Brian Scassellati
2012-2016	**B.A. in Cognitive Science; Computer Science minor** Vassar College

Research Experience

2016-Current	**Robotics Ph.D. student** –Social robotics laboratory, *Yale University* Human–robot collaboration research under the supervision of Professor Brian Scassellati.
2014-2015	**Research Fellow** –Interdisciplinary robotics research lab, *Vassar College* Designed and programmed a genotype-phenotype mapping scheme for mobile behavior-based robots incorporating sexual reproduction and ontogenetic factors.
2014	**Neuroscience researcher** –Icahn School of Medicine, *Mount Sinai* Conducted fMRI research on resting state networks in macaque monkeys. Acquired skills using fMRI analysis software FSL.

Teaching Experience

Spring 2018/2019	**Intelligent Robotics** Teaching Assistant
Fall 2017	**Object Oriented Programming** Teaching Assistant
Fall 2014/2015	**Perception and Action** Teaching Assistant

Technical and scientific skills

Research	Human–robot collaboration, natural language understanding
Programming	**Python** (and scientific tools), **C-C++**, **LaTeX**, **Git**, **Jekyll**, **Emacs**, **Continuous integration** (with Travis)
ML/AI	General machine learning and computer vision techniques
Robots	Robot operating system (**ROS**), 5+ years experience with **Baxter research robot**, 2+ years experience with **UR5 robot**
System	8+ years of daily **Linux** experience

Grants

March 2018 **Bridging the Gap: An NSF Workshop on Conversational Agents and Human–Robot Interaction**
Justine Cassell, Brian Scassellati, Jake Brawer, Michael Madaio

NSF Cyber–Human Systems (CHS), Robust Intelligence, National Robotics Initiative. Award #1829237

Service

Conference reviews	International Conference on Humanoid Robots (**Humanoids**; 2018) International Conference on Intelligent Robots and Systems (**IROS**; 2020) International Conference on Human–Robot Interaction (**HRI**; 2017, 2018, 2019, 2020, 2021, 2022) International Conference on Robotics and Automation (**ICRA**; 2019)
Journal reviews	ACM Transactions on Human–Robot Interaction (**THRI**; 2019, 2020)
Students supervised	Kevin Choi (2018) Acshi Haggenmiller (2016-2017) Sarah Widder (2017-2019) Tan Zong Xuan (2017-2018) Kayleigh Bishop (2017-2019)

Conference proceedings

Brawer, **Jake**, Qin, Meiying, and Scassellati, Brian (2020). "**A causal approach to tool affordance learning**". In: *2020 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. IEEE, pp. 8394–8399. URL: https://jakebrawer.com/assets/pdfs/IROS2020.pdf.

Brawer, **Jake**, Mangin, Olivier, Roncone, Alessandro, Widder, Sarah, and Scassellati, Brian (2018). "**Situated Human–Robot Collaboration: predicting intent from grounded natural language**". In: *Intelligent Robots and Systems (IROS)*. URL: https://jakebrawer.com/assets/pdfs/IROS18.pdf.

Scassellati, Brian, **Brawer**, **Jake**, Tsui, Katherine, Nasihati Gilani, Setareh, Malzkuhn, Melissa, Manini, Barbara, Stone, Adam, Kartheiser, Geo, Merla, Arcangelo, Shapiro, Ari, et al. (2018). "**Teaching Language to Deaf Infants with a Robot and a Virtual Human**". In: *Proceedings*

of the 2018 CHI Conference on Human Factors in Computing Systems. ACM, p. 553. URL: https://jakebrawer.com/assets/pdfs/CHI18.pdf.

Tan, Zong Xuan, **Brawer**, **Jake**, and Scassellati, Brian (2018). " **That's Mine! Learning Ownership Relations and Norms for Robots** ". In: *Thirty-second AAAI conference on artificial intelligence*. URL: https://jakebrawer.com/assets/pdfs/AAAI18.pdf.

Journal articles

*Qin, Meiying, ***Brawer**, **Jake**, and Scassellati, Brian (2021). "**Rapidly Learning Generalizable and Robot-Agnostic Tool-Use Skills for a Wide Range of Tasks**". In: *Frontiers in Robotics and AI* 8. URL: https://jakebrawer.com/assets/pdfs/CHI22.pdf.

Brawer, **Jake**, Hill, Aaron, Livingston, Ken, Aaron, Eric, Bongard, Joshua, and Long Jr, John H (2017). "**Epigenetic Operators and the evolution of Physically embodied robots**". In: *Frontiers in Robotics and AI* 4, p. 1. URL: https://jakebrawer.com/assets/pdfs/FRONTIERS17.pdf.