

Samuel Barrett

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Work Experience

- **Sony AI** Cambridge, MA
Senior Research Scientist 11/19 - present
 - Developed AI that beat champion human drivers in Gran Turismo using deep reinforcement learning
 - Published work at Nature
 - Served as manager and technical lead for a team of researchers and AI engineers
 - Instituted and ran company project coordination and defined development plans
 - Led research on learning in multiplayer setting using deep learning and self play
 - Helped design and build the core machine learning library
 - Built the interface between the AI system and the game upon which all learning and testing is done
- **Cogitai, Inc.** Cambridge, MA
Senior Research Scientist 8/16 - 11/19
 - Primary architect and developer of continua-ai: the machine learning library powering Continua
 - Brought Cogitai's core product to market: the Continua platform for reinforcement learning, supervised learning, and unsupervised learning
 - Co-led in hiring and helped develop the hiring process
 - Defined product requirements, created project timelines, and guided company product strategy
- **Amazon Robotics** North Reading, MA
Research Scientist 11/14 - 8/16
 - Researched and developed a machine learning system for detecting problems in Amazon warehouses, saving millions of dollars a year
 - Performed research on applying machine learning to robotics systems
 - Created and taught a course on machine learning at Amazon Robotics
- **University of Texas at Austin** Austin, TX
NDSEG Fellow, Graduate Research Assistant, and Teaching Assistant 8/08 - 10/14
 - Created an empirically supported algorithm for cooperating with unknown teammates
 - Developed a novel transfer learning algorithm for combining information from many sources
 - Developed behaviors for locomotion, teamwork, and whole body control for humanoid robots
 - Led robot soccer team to win the international RoboCup Standard Platform League in 2012
- **Stevens Institute of Technology** Hoboken, NJ
Researcher 6/05 - 8/08
 - Combined text analysis with analysis of social networking to predict the popularity of news stories
 - Optimized sensor placement for detecting underwater threats for harbor security

Education

- **University of Texas At Austin** Austin, TX
Ph.D., Department of Computer Science 8/08 - 10/14
 - Dissertation: *Making Friends on the Fly: Advances in Ad Hoc Teamwork*
 - Advisor: Prof. Peter Stone
 - Research: Ad hoc teams, reinforcement learning, transfer learning, and robotics
- **Stevens Institute of Technology** Hoboken, NJ
Bachelor of Science in Computer Science 8/04 - 5/08
 - Minor in Mathematics, Minor in Music Technology

Skills

- **Proficient Languages:** Python, C++, C
- **Familiar Languages:** Java, Javascript, Typescript, SQL, Scheme, Lua, MATLAB
- **Tools:** TensorFlow, MXNet, Numpy, Scikit-learn, Pandas, Jupyter, Git, \LaTeX , Github, Subversion, Jira, Confluence, Linux, Unix, Windows, MacOS
- **Skills:** Reinforcement Learning, Deep Learning, Machine Learning, Robotics, Artificial Intelligence, Supervised Learning, Transfer Learning, Computer Vision

Awards and Honors

Patents

- Co-inventor on one patent application at Sony AI
- Co-inventor on three patent applications at Cogitai
- Co-inventor on six granted patents at Amazon Robotics

The University of Texas at Austin

- RoboCup SPL World 3rd Place Team Leader, 2013
- RoboCup SPL World Champions Team Leader, 2012
- RoboCup 3D Simulator League World Champions Team Member, 2011
- RoboCup SPL World 3rd Place Team Member, 2010
- National Defense Science and Engineering Graduate (NDSEG) Fellowship, 2009-2012

Stevens Institute of Technology

- NSF GRFP Honorable Mention, 2008
- Barry M. Goldwater Scholarship, 2007-2008
- Upsilon Pi Epsilon, Computer Science International Honor Society, 2006-2008
- Neupauer Scholarship, four year, full tuition, merit scholarship, 2004-2008

Code Releases

- Reinforcement learning and pursuit domain code release
https://github.com/sambarrett/rl_pursuit
- UT Austin Villa 2012 code release
http://www.cs.utexas.edu/~AustinVilla/?p=downloads/source_code_and_binaries

Selected Publications

1. Peter R. Wurman, **Samuel Barrett**, Kenta Kawamoto, James MacGlashan, Kaushik Subramanian, Thomas J. Walsh, Roberto Capobianco, Alisa Devlic, Franziska Eckert, Florian Fuchs, Leilani Gilpin, Piyush Khandelwal, Varun Kompella, HaoChih Lin, Patrick MacAlpine, Declan Oller, Takuma Seno, Craig Sherstan, Michael D. Thomure, Houmeh Aghabozorgi, Leon Barrett, Rory Douglas, Dion Whitehead, Peter Dürr, Peter Stone, Michael Spranger, and Hiroaki Kitano. Outracing champion Gran Turismo drivers with deep reinforcement learning. *Nature*, 602(7896):223–228, Feb 2022.

2. **Samuel Barrett**, Avi Rosenfeld, Sarit Kraus, and Peter Stone. Making friends on the fly: Cooperating with new teammates. *Artificial Intelligence*, October 2016.

3. **Samuel Barrett**, Noa Agmon, Noam Hazon, Sarit Kraus, and Peter Stone. Communicating with unknown teammates. In *Proceedings of the Twenty-First European Conference on Artificial Intelligence*, August 2014.