Andreea Bobu

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Education

2017–present **PhD in Computer Science**, *University of California Berkeley*, CA, USA, CGPA: 4.0.
Advisor: Anca Dragan

2013–2017 **Bachelor of Science in Computer Science and Engineering**, *Massachusetts Institute of Technology (MIT)*, Cambridge, MA, USA, GPA: 5.0/5.0.
Advisors: Polina Golland, Stefanie Jegelka, Adrian Dalca

Publications

preprint link Arjun Sripathy*, **Andreea Bobu***, Daniel S. Brown, Anca D. Dragan. "Dynamically Switching Human Prediction Models for Efficient Planning". *IEEE International Conference on Robotics and Automation (ICRA) 2021.*

to appear Matthew Zurek*, **Andreea Bobu***, Daniel S. Brown, Anca D. Dragan. "Situational Confidence Assistance for Lifelong Shared Autonomy". *IEEE International Conference on Robotics and Automation (ICRA) 2021.*

paper link **Andreea Bobu***, Marius Wiggert*, Claire Tomlin, Anca D. Dragan. "Feature Expansive Reward Learning: Rethinking Human Input". *ACM/IEEE International Conference on Human Robot Interaction (HRI) 2021.* **Best paper award nominee.**

paper link **Andreea Bobu***, Dexter Scobee*, Jaime F. Fisac, Shankar Sastry, Anca D. Dragan. "LESS is More: Rethinking Probabilistic Models of Human Behavior". *ACM/IEEE International Conference on Human Robot Interaction (HRI), 2020.* **Best paper award.**

paper link **Andreea Bobu**, Anca D. Dragan. "Detecting Hypothesis Space Misspecification in Robot Learning from Human Input". *Companion of the 2020 ACM/IEEE International Conference on Human-Robot Interaction (HRI).*

paper link **Andreea Bobu**, Andrea Bajcsy, Jaime F. Fisac, Sampada Deglurkar, Anca D. Dragan. "Quantifying Hypothesis Space Misspecification in Learning from Human-Robot Demonstrations and Physical Corrections". *IEEE Transactions on Robotics (T-RO), 2019.*

paper link **Andreea Bobu**, Andrea Bajcsy, Jaime F. Fisac, Anca D. Dragan. "Learning Under Misspecified Objective Spaces". *Conference on Robot Learning (CoRL), 2018.* **Invited to special issue.**

paper link **Andreea Bobu**, Eric Tzeng, Judy Hoffman, Trevor Darrell. "Adapting to Continuously Shifting Domains". *International Conference on Learning Representations (ICLR) Workshop, 2018.*

paper link Adrian V. Dalca, **Andreea Bobu**, Natalia S Rost, Polina Golland. "Patch-Based Discrete Registration of Clinical Brain Images". *In: Proc. MICCAI-PATCHMI Patch-based Techniques in Medical Imaging, LNCS 9993 (2016), 60-67.* **Best paper award.**

Experience

2016–2017 **MIT Computer Science and Artificial Intelligence Laboratory** *Cambridge, MA*
Undergraduate Researcher under Prof. Polina Golland and Stefanie Jegelka
- Utilized machine learning techniques (principal component analysis, Gaussian mixture models, and latent topic models) to construct better 3D representations for leukoaraiosis, a small vessel brain disease.
- Predicted diseased areas in the brain by modeling white matter hyperintensity in 3D brain images.

| Summer 2015 | **Microsoft** | *Cambridge, MA* |
| | **Software Development Intern** | |

- Helped build a health-oriented food-tracking application for the Microsoft Band.
- Developed the entire back-end side of the cloud server used for the application.
- Implemented part of the user interface and helped create user studies (C#, node.js, Azure).

| 2015–2017 | **MIT Computer Science and Artificial Intelligence Laboratory** | *Cambridge, MA* |
| | **Undergraduate Researcher** under Prof. Polina Golland and Dr. Adrian Dalca | |

- Utilized machine learning, inference, and image analysis techniques to create a patch-based discrete image registration algorithm for sparse 3D brain images in MATLAB.
- Released code that is applicable to a variety of image shapes, dimensions, and modalities. The open-source code can be found here.
- Published a paper for the MICCAI Patch-MI workshop 2016 that won **Best Paper Award**.

| Summer 2014 | **Bloomberg** | *New York, NY* |
| | **Research and Development Intern (Software Development)** | |

- Developed a unit-testing framework for a large-scale C++ system (Internal and Web Applications team).
- Winner of the B-Puzzled algorithmic competition – out of approximately 20 teams.

| Spring 2014 | **MIT Koch Institute for Integrative Cancer Research** | *Cambridge, MA* |
| | **Undergraduate Researcher** under Prof. Daniel Anderson | |

- Utilized Natural Language Processing tools to mine biomedical literature for drug and toxin biodistribution in the human body.
- Created an ontological tree of human organ subparts and worked on linking mined chemicals to the organ area where they are most prevalent.

Awards and Recognitions

2020	Selected to participate in the Human-Robot Interaction Pioneers Workshop, a highly selective workshop seeking to foster creativity, communication, and collaboration across HRI
2019	Recipient of the Cadence Women in Technology Scholarship
2019	UC Berkeley EECS Nominee for the IBM PhD Fellowship
2019	UC Berkeley EECS Nominee for the Google PhD Fellowship
2018	UC Berkeley EECS Nominee for the Microsoft Research Ada Lovelace Fellowship
2016	Recipient of the Google Anita Borg Memorial Scholarship

Teaching

Spring 2021	Teaching Assistant for Algorithmic Human-Robot Interaction (CS 287H) at UC Berkeley
Fall 2019	Teaching Assistant for Introduction to Artificial Intelligence (CS 188) at UC Berkeley
August 2018	Teaching Assistant for AI4ALL Berkeley, a camp for students from underrepresented communities
January 2016	Instructor/Lecturer for Introduction to Software Engineering in Java (6.178) at MIT
2015-2017	Tutor for Design and Analysis of Algorithms (6.046) at MIT
2015-2017	Tutor in Computer Science as part of TBP's Tutoring Committee at MIT
Spring 2014	Student Lab Assistant for Introduction to Electrical Engineering and Computer Science at MIT
2013-2015	Teacher for "Water Security in Asia", "Introduction to Probability", and "Group Theory" as part of the Educational Studies Program at MIT

Organized Workshops and Seminars

June 2021	Co-organizer of the ICRA Social Intelligence in Humans and Robots workshop
July 2020	Co-organizer of the RSS Advances and Challenges in Imitation Learning for Robotics workshop
2020-2021	Co-organizer of the SemiAutonomous Vehicles seminar

Leadership and Outreach

Summer 2019	Co-organizer of the Self-Driving Cars workshop for the Girls in Engineering camp
2018-present	Mentor in the Berkeley AI Research Undergraduate Mentoring Program
2018-2019	Mentor in the Berkeley WICSE Mentorship Program
2016	Mentor in MIT's Women in Science and Engineering (WiSE) Program
2015-present	Member of Tau Beta Pi (TBP) National Honor Society for Engineering
2015-present	Member of Eta Kappa Nu (HKN) National Honor Society for EECS

Review Activities

RSS	Robotics: Science and Systems
T-RO	IEEE Transactions on Robotics
IROS	IEEE International Conference on Intelligent Robots and Systems
ICRA	IEEE International Conference on Robotics and Automation
HRI	ACM/IEEE International Conference on Human-Robot Interaction
ICML	International Conference on Machine Learning
Nature	Machine Intelligence

Relevant Coursework

Vision/ML/AI	Machine Learning, Computer Vision, Deep Reinforcement Learning, Advances in Deep Learning, Robotics, Artificial Intelligence, Convex Optimization and Approximation, Nonlinear Optimization, Bayesian Inference and Modeling, Introduction to Inference, Shape Analysis, Cognitive Development for Computer Scientists
Mathematics	Probability and Random Variables, Theoretical Statistics, Statistical Models: Theory and Application, Statistics for Research Projects, Convex Optimization and Approximation, Linear Algebra, Multivariate Calculus, Cryptography
Algorithms	Design and Analysis of Algorithms, Introduction to Algorithms, Theory of Computation
Systems	Computer System Engineering, Signals and Systems, Elements of Software Construction, Computation Structures

Technical skills

Languages	Python, MATLAB, Java, Julia, C/C++, C#, node.js
Libraries	Tensorflow, OpenAI Gym, PyTorch, ROS, pybullet
OS	GNU/Linux (Ubuntu), Microsoft Windows, MacOS
Other	Git, LaTeX, Microsoft Office, Adobe Photoshop, MySQL Database, HTML