

Victoria Dean

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EDUCATION

Carnegie Mellon University

2018 – present

PhD student in Robotics, School of Computer Science (GPA: 4.2/4.0)

Advised by Abhinav Gupta

Relevant Courses: Deep Reinforcement Learning (10-703), Statistical Techniques in Robotics (16-831), Deep RL for Robotics (16-881), Math for Robotics (16-811), Mechanics of Manipulation (16-741)

Massachusetts Institute of Technology

2013 – 2017

Bachelor of Science, Computer Science and Engineering

Relevant Courses: Autonomous Vehicles (2.166), Computer Vision (6.819), ML for Healthcare (6.S897), NLP (6.806), Performance Engineering (6.172), Inference (6.008), Undergraduate Research (6.UAR)

RESEARCH AND INDUSTRY EXPERIENCE

DeepMind, Research Scientist Intern

Fall 2021

Investigated policy fine-tuning in task transfer advised by Professor Doina Precup on the Montreal team.

Waymo, Machine Learning Research Resident

2017 – 2018

Combined imitation learning with reinforcement learning for better trajectory generation. Designed and deployed a low-latency text detection and recognition system that runs on the Waymo fleet.

MIT Computer Vision Group, Undergraduate Researcher

2015 – 2017

Worked with Professor Antonio Torralba and Carl Vondrick on training deep models to exploit underused signals present in videos, including visual dynamics and audio.

Deep Genomics, Research Intern

Summer 2016

Explored deep learning use on genomic data. Developed a CNN for an RNA pattern recognition task that gave a 1.2x improvement in sensitivity above baselines. Authored a paper, which won 2nd best presentation at the Machine Learning for Computational Biology workshop at NeurIPS 2016.

Counsyl, Computational Biology Research Intern

Summer 2015

Developed an analysis pipeline for a liquid biopsy that reconstructs a tumor's genome from circulating tumor DNA in the bloodstream. Used statistics and signal processing techniques to reduce sequencer and polymerase noise by 1000x.

Google, Software Engineering Intern

Summer 2014

Designed and implemented a distributed video analysis system for finding coherent animated clips in YouTube videos. Launched the system internally, allowing all Google employees to test out the project.

FIRST Robotics Team 1700, Programming Lead, Coach

2009 – 2014, 2018

Mentored all-girls high school robotics team, Castilleja Gatorbotics. Previously as a student, developed PID controllers and image tracking to identify and automatically aim at basketball hoops.

UC Santa Cruz Astronomy Research Internship

Summers 2011, 2012

Conducted research with Professor Raja Guhathakurta to develop pattern matching software to search spectra for distant galaxies. Wrote paper and presented at the 2013 American Astronomical Society conference.

PUBLICATIONS

- V. Dean**, I. Nourbakhsh. Teaching Ethics by Teaching Ethics Pedagogy. ACM SIGCSE 2022.
- S. Parisi*, **V. Dean***, D. Pathak, A. Gupta. Interesting Object, Curious Agent: Learning Task-Agnostic Exploration. Oral at NeurIPS 2021.
- E. Xing, A. Gupta, S. Powers, **V. Dean**. KitchenShift: Evaluating Zero-Shot Generalization of Imitation-Based Policy Learning Under Domain Shifts. Distribution Shifts workshop, NeurIPS 2021.
- V. Dean**, Y. Shavit, and A. Gupta. Robots on Demand: A Democratized Robotics Research Cloud. Blue Sky Oral at CoRL 2021.
- V. Dean**, S. Tulsiani, A. Gupta. See, Hear, Explore: Curiosity via Audio-Visual Association. NeurIPS 2020.
- V. Dean**, A. Ogale, H. Kretschmar, D. Silver, C. Kershaw, P. Chaudhari, C. Wu, C. Li. Phrase Recognition Model for Autonomous Vehicles. US Patent Number 10699141B2.
- V. Dean**, S. Tulsiani, A. Gupta. Audio Prediction as Intrinsic Reward for Exploration. Women in Machine Learning workshop, NeurIPS 2019.
- V. Dean**, A. DeLong, B.J. Frey. Deep Learning for Branch Point Selection in RNA Splicing. Machine Learning for Computational Biology (oral) and Women in Machine Learning (poster) workshops, NeurIPS 2016.
- V. Dean**, P. Guhathakurta, et al. Search for High-Redshift Lyman-Alpha Emitters in the DEEP3 Galaxy Redshift Survey. American Astronomical Society meeting 2013.
- K. McCormick, A. Alvarez-Buylla, **V. Dean**, et al. Semi-automated Search For Lyman-alpha And Other Emission Lines In The DEEP2 And DEEP3 Databases. American Astronomical Society meeting 2012.

TEACHING

- Ethics and Robotics (16-735)**, Instructor of Record Spring 2021
Designed and taught seminar with Professor Illah Nourbakhsh. Created module design project to develop ethics curricula for other courses in collaboration with 11 Carnegie Mellon CS faculty.
- Deep RL for Robotics (16-881)**, Head Teaching Assistant Spring 2020
Led discussions and presentations on Deep RL and Robotics in seminar course with Professor David Held.
- Introduction to Deep Learning (6.S191)**, Lecturer and Co-Chair January 2017
Organized MIT's first deep learning course. My multi-modal learning lecture has 19,000+ views on YouTube.
- MIT Global Teaching Labs**, Computer Science Instructor January 2016
Developed and taught a month's worth of curriculum on elective topics, including algorithms and machine learning, to 4th and 5th year computer science students at a technical school in Prato, Italy.
- Society of Women Engineers**, Board Member and Instructor 2014 – 2017
Developed and taught #HelloWorld, an MIT program encouraging middle school girls to pursue CS. Still run every semester, the 7-week program enables students to build websites using HTML, CSS, and JavaScript.
- Introduction to EECS (6.01)**, Student Lab Assistant Spring 2014
Led MIT students through course labs on topics ranging from probability to PID control on real robots.

SERVICE AND OUTREACH

CMU Robotics Institute Faculty Hiring Committee, Committee Member 2021
Contributed to faculty hiring committee through entire process, including reading packets, interviewing all 16 candidates selected for visits, and soliciting and consolidating feedback from the department.

CMU AI mentorship program, Organizer 2018 – 2021
Founded program with goal of involving more women and underrepresented minorities in AI research. In the first two years, paired 109 minority undergraduates with PhD student mentors.

CMU SCS Dean’s Advisory Committee, Committee Member 2019-2021
Represented Robotics Institute on School of Computer Science committee reporting to Dean Martial Hebert about the experiences and challenges facing SCS PhD students. Led Anti-Racism Working Group, whose letter, Towards Anti-Racist Change in the School of Computer Science, amassed more than 600 signatures.

CMU Robotics Institute Director Search, Interview Committee Member 2021
Selected as representative in department chair search. Interviewed candidates and elevated student interests.

OurCS, Committee Member 2019
Co-organized research conference for undergraduate women in collaboration with Dr. Carol Frieze. Initiated scholarship program and secured travel grants for students from Mexico, Ghana, Uganda, and Ethiopia.

Code for Good, Founder 2014 – 2017
Founded MIT group that connects students and nonprofits on technical projects. Since its founding, hundreds of MIT students have worked with 40+ nonprofits through a course (6.S187) and a consulting program.

REVIEWING

Conferences

International Conference on Machine Learning (ICML)	2022
International Conference on Learning Representations (ICLR)	2022
Conference on Robot Learning (CoRL)	2021
Neural Information Processing Systems (NeurIPS)	2021

Workshops

Self-Supervised Learning for Reasoning and Perception at ICML	2021
Differentiable Computer Vision, Graphics, and Physics (<i>meta-reviewer and organizer</i>) at NeurIPS	2020
Self-Supervised Learning: Theory and Practice at NeurIPS	2020
Women in Machine Learning at NeurIPS	2016, 2018

ADVISING

Jacob Adkins, Robotics Institute Summer Scholar	2021
Eliot Xing, Robotics Institute Summer Scholar	2020-2021
Maxine Lui, Undergraduate Researcher	2021

INVITED TALKS/PANELS

Robotics Institute Summer Scholars Graduate Student Panel	July 2021
CVPR Sight and Sound Workshop Invited Paper Talk	June 2021
Reasoning, AI and VisioN (RAIVN) Lab Recognition Lunch at University of Washington	November 2020
Robotics Institute DEI Town Hall Panel	September 2020
Robotics Institute Summer Scholars Graduate Student Panel	July 2020
Duke Technology Scholars Program Fireside Chat	June 2019
Castilleja Global Week AI Panel	January 2019
Program in Quantitative Genomics Working Group Series at Harvard School of Public Health	April 2018
MIT Women in EECS Tech Talk	April 2017

HONORS AND AWARDS

Cisco Undergraduate Research and Innovation Scholar	2015 – 2016
2nd Place Oral Presentation at NeurIPS Machine Learning in Computational Biology Workshop	2016
Dropbox Engineering Prize at Stanford TreeHacks	2015
Winner of MIT Education DesignShop	2014
Intel Science Talent Search Semifinalist (One of 300)	2013

TOOLS

Proficient:	Python	C/C++	Java	Tensorflow	JAX/Haiku
Familiar:	MATLAB	Torch	PyTorch	Keras	ROS

OUTSIDE INTERESTS

Experimental baking, swing dancing, reading (Goodreads), and rowing (NCAA Division I, MIT 2017-2018).