

Victoria Dean

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APPOINTMENTS

Olin College of Engineering 2023 – present
Assistant Professor of Computer Science

EDUCATION

Carnegie Mellon University 2018 – 2023
PhD in Robotics, School of Computer Science
Thesis: *Improving Robotic Exploration with Self-Supervision and Diverse Data*
Committee: Abhinav Gupta (Advisor), David Held, Shubham Tulsiani, Rob Fergus, Chelsea Finn
Future Faculty Program Participant at Eberly Center for Teaching Excellence and Educational Innovation

Massachusetts Institute of Technology 2013 – 2017
Bachelor of Science in Computer Science and Engineering

TEACHING EXPERIENCE

Full Courses

Olin Building Energy and Operations Optimization (ENGR3199-01) Fall 2024
Proposed and taught multidisciplinary course on using machine learning, data science, and thermodynamics to improve efficiency and operations of Olin’s campus heating and cooling systems. Co-taught with Claire Rodgers (campus sustainability), David Shuman (data science), and Alessandra Ferzoco (thermodynamics).

Olin Software Design (ENGR2510-03) Spring 2024
Taught Olin’s introductory course in software engineering. Managed the integration of ethics and machine learning concepts throughout the semester. Designed the course’s Large Language Model policy.

Olin Reinforcement Learning Reading Group (ENGR0077-G-06) Spring 2024
Led paper reading seminar on reinforcement learning with topics including metalearning, safety constraints, robotics, and climate solutions. 13 students participated, and discussion leaders rotated for each unit.

Olin Artificial Intelligence and Society (AHSE2199B) Fall 2023
Developed and taught course with Co-Instructors Paul Ruvolo and Caitrin Lynch. Implemented embedded ethics project in which students developed ethics content for five technical Olin courses.

CMU Ethics and Robotics (16-735) Spring 2021
Designed and taught course with Prof. Illah Nourbakhsh. Created module design project in which students developed ethics curricula for 11 CMU CS courses. Presented course experience report at SIGCSE 2022.

Short Courses

- MIT Introduction to Deep Learning (6.S191), Lecturer and Co-Chair January 2017
Co-taught MIT's first deep learning course, for 231 students. My multimodality lecture has 27,000+ views.
- 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 vocational school in Prato, Italy.
- MIT Code for Good (6.S187), Founder and Instructor 2014 – 2017
Created and led course and student group connecting students and nonprofits on CS projects. Since 2014, hundreds of students have worked with 60+ nonprofits. Helped start related programs at three schools.

Teaching Assistant

- CMU Deep Reinforcement Learning for Robotics (16-881), Teaching Assistant Spring 2020
As sole TA for Professor David Held, gave guest lectures, led discussions, and graded writing and projects.
- MIT Introduction to EECS (6.01), Student Lab Assistant Spring 2014
Led students through course labs on topics ranging from probability to PID control on real robots.

K12 Programs

- FIRST Robotics Team Castilleja Gatorbotics, Head Coach 2017 – 2018
Mentored all-girls high school robotics team on topics ranging from programming to project management.
- MIT Society of Women Engineers #HelloWorld, Lead Instructor 2014 – 2017
Developed and taught 7-week course encouraging middle school girls to pursue computer science. Still run every semester, the program enables students to build websites using HTML, CSS, and JavaScript.
- Khan Academy Discovery Lab, Student Instructor Summer 2012
Taught middle school students math and science with activities in probability, engineering, and CS.

RESEARCH AND INDUSTRY EXPERIENCE

- CMU Robotics Institute**, Graduate Student Researcher 2018 – 2023
Conducting research to improve efficiency and evaluation of robot learning advised by Professor Abhinav Gupta. Published 4 papers at top learning conferences, including NeurIPS and CoRL.
- 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
Trained video models using dynamics and audio with Professor Antonio Torralba and Carl Vondrick.

Deep Genomics, Research Intern Summer 2016
 Designed RNA pattern recognition model that improved sensitivity by 1.2x with Professor Brendan Frey and Andrew Delong. Won 2nd best paper at 2016 Machine Learning for Computational Biology Workshop.

Counsyl, Computational Biology Research Intern Summer 2015
 Developed analysis pipeline for a liquid biopsy that reconstructs a tumor’s genome from circulating tumor DNA. Used signal processing techniques to reduce sequencer and polymerase noise by 1000×.

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.

Coursera, Software Engineering Intern Summer 2013
 Created internationalization architecture for Coursera’s website and shortened page load time by 10-20%.

UC Santa Cruz Astronomy Group, Research Intern Summers 2011, 2012
 Developed pattern-matching software to search spectra for galaxies advised by Prof. Raja Guhathakurta.

HONORS AND AWARDS

NEH Spotlight on Humanities in Higher Education grant, co-PI (\$59,633)	2024 – 2026
ICRA Best Robotic Manipulation Paper Award Finalist	2024
Siebel Scholars Award Recipient (\$35,000)	2023
Best Paper Award at NeurIPS Broadening Collaborations in Machine Learning Workshop	2022
Schmidt Futures Grant for CMU Robotics Testbed (\$209,000)	2021 – 2023
NSF Graduate Research Fellowship Program Awardee (\$102,000)	2020 – 2023
2nd Place Oral Presentation at NeurIPS Machine Learning in Computational Biology Workshop	2016
Cisco Undergraduate Research and Innovation Scholar	2015
Dropbox 1st Place Engineering Prize at Stanford TreeHacks	2015
1st Place at MIT Education DesignShop	2014
Intel Science Talent Search Semifinalist (top 300 across US)	2013

PUBLICATIONS

Conference Papers

J. Mejia, **V. Dean**, T. Hellebrekers, A. Gupta. Hearing Touch: Audio-Visual Pretraining for Contact-Rich Manipulation. Best Robotic Manipulation Paper Award Finalist at *ICRA* 2024.

G. Zhou*, **V. Dean***, M. Srirama, A. Rajeswaran, J. Pari, K. Hatch, A. Jain, T. Yu, P. Abbeel, L. Pinto, C. Finn, A. Gupta. Train Offline, Test Online: A Real Robot Learning Benchmark. *ICRA* 2023.

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.

V. Dean, Y. Shavit, 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.

Other Publications (Workshop Papers, Posters, and Patents)

- S. Krause-Levy, **V. Dean**, L. Kirabo, C. Taylor. Primarily Undergraduate Institution Faculty. Birds of a Feather at *ACM SIGCSE 2025*.
- J. Campbell, P. Conrad, **V. Dean**, G. Herman, M. Hilton. Best Practices for Hiring of Teaching Track Faculty Members. Panel at *ACM SIGCSE Virtual 2024*.
- V. Dean**, L. Kirabo, S. Krause-Levy, C. Taylor. Primarily Undergraduate Institution Faculty. Birds of a Feather at *ACM SIGCSE 2024*.
- G. Challen, **V. Dean**, N. Derbinsky, M. Wang, J. Smith. Interviewing the Teaching Faculty Hiring Process. Panel at *ACM SIGCSE 2024*.
- V. Dean**, D. Toyama, D. Precup. Don't Freeze Your Embedding: Lessons from Policy Finetuning in Environment Transfer. *Agent Learning in Open-Endedness (spotlight) and Generalizable Policy Learning in the Physical World workshops at ICLR 2022*.
- E. Xing, A. Gupta, S. Powers, **V. Dean**. KitchenShift: Evaluating Zero-Shot Generalization of Imitation-Based Policy Learning Under Domain Shifts. *Distribution Shifts Workshop at NeurIPS 2021*.
- V. Dean**, A. Ogale, H. Kretzschmar, 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 at 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 workshops at NeurIPS 2016*.
- V. Dean**, C. Vondrick, A. Torralba. Understanding Personality with Deep Convolutional Neural Networks. *MIT EECSCon 2016*.
- V. Dean**, C. Vondrick, A. Torralba. Predicting the Future: Generative Models for Video. *MIT SuperUROF Poster Session 2015*.
- 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*.

RESEARCH ADVISING

Esther Brown, Harvard PhD Student

2024 – present

Olin Advising

Luke Raus '24 and Dakota Chang '27

Summer 2024

Offline Reinforcement Learning for HVAC Control

Brooke Wager '26 and Lily Wei '27

Spring and Summer 2024

Anomaly Detection for Campus HVAC

Dakota Chang '27 and Sally Lee '27 Analyzing Transportation Impact on Air Pollution	Spring 2024
Jessica Brown '25 and Krishna Suresh '24 KitchenBot: Offline Policy Stitching	Spring 2024
Andrew Kurtz '27, Dongim Lee '27, and Madie Tong '26 Reinforcement Learning for Pendulum Control	Spring 2024

CMU Advising

Jared Mejia, Machine Learning MS Student	2022 – 2023
Ryan Aponte, Robotics Institute MS Student	2022 – 2023
Mohan Kumar Srirama, Research Engineer	2022 – 2023
Gaoyue Zhou, Robotics Institute MS Student	2021 – 2023
Shaden Alshammari, Robotics Institute Summer Scholar	Summer 2022
Krishna Patel, CMU Undergraduate Researcher	Spring 2022
Jacob Adkins, Robotics Institute Summer Scholar	2021 – 2022
Maxine Lui, CMU Undergraduate Researcher	Spring 2021
Eliot Xing, Robotics Institute Summer Scholar	2020 – 2021

Independent Study Advising

Kenneth Xiong '26, Machine Learning	Spring 2024
Vivian Mak '26, Autonomous Driving	Spring 2024
Jessica Brown '25, Deep Reinforcement Learning	Fall 2023
Krishna Suresh '24, Reinforcement Learning	Fall 2023
Madie Tong '25, Introductory Fundamentals of Robotic Math	Fall 2023

INVITED TALKS AND PANELS

Talks

Machine Learning Summer School in Arequipa, Peru (upcoming)	August 2025
Olin Artificial Intelligence and Society Guest Instructor	September 2024
Olin Community Research Seminar	October 2023
3rd Annual Learning Workshop	March 2023
Pittsburgh Women in Mathematics and Computing Symposium	February 2023
Olin College	February 2023
Colgate University	December 2022
Occidental College	December 2022
Harvey Mudd College	December 2022
Amherst College	December 2022
Mount Holyoke College	December 2022
Wellesley College	November 2022
Smith College	November 2022
CMU Robots Perceiving and Doing Lab Invited Talk	September 2022
CVPR Sight and Sound Workshop Invited Paper Talk	June 2021
The Nueva School Intersession Self-Supervised Machine Learning Talk	January 2021
University of Washington Reasoning, AI and VisioN Lab Recognition Lunch	November 2020
Quantitative Genomics Working Group Series at Harvard School of Public Health	April 2018
MIT Women in EECS Tech Talk	April 2017

Panels

Olin Admission and Financial Aid: Exploring Olin Research	October 2024
Olin NSF GRFP Q&A Session	September 2024
Olin Post Graduate Planning: Graduate School Info Session	December 2023, September 2024
CRA Snowbird Best Practices of Hiring Teaching Track Faculty Members	July 2024
Olin Curriculum Virtual AMA for Admitted Students	May 2024
CoRL Learning to Adapt and Improve in the Real World Workshop Panel	December 2022
Institute for Computational and Data Sciences Symposium AI Governance Panel	October 2022
Duke Technology Scholars Program Fireside Chat	June 2019, May 2022
CMU Eberly Center Spotlight on Graduate Teaching Panel	September 2021
Robotics Institute Summer Scholars Graduate Student Panel	July 2020, July 2021
Robotics Institute DEI Town Hall Panel	September 2020
Castilleja Global Week AI Panel	January 2019

ACADEMIC SERVICE

Conference Reviewing

Reinforcement Learning Conference (RLC) (<i>Senior Reviewer</i>)	2024
Special Interest Group on Computer Science Education (SIGCSE)	2024
International Conference on Robotics and Automation (ICRA)	2023
Conference on Robot Learning (CoRL)	2021, 2022
Neural Information Processing Systems (NeurIPS)	2021, 2022
International Conference on Machine Learning (ICML)	2022
International Conference on Learning Representations (ICLR)	2022

Workshop Organizing

Train Offline, Test Online Competition at NeurIPS (<i>lead organizer</i>)	2023
Learning from Diverse, Offline Data at ICRA (<i>organizer</i>)	2023
Robot Learning in the Cloud: Remote Operations and Benchmarking at RSS (<i>lead organizer</i>)	2022
Learning from Diverse, Offline Data at RSS (<i>meta-reviewer and organizer</i>)	2022
Differentiable Computer Vision, Graphics, and Physics at NeurIPS (<i>meta-reviewer and organizer</i>)	2020

Workshop Reviewing

Self-Supervised Learning for Reasoning and Perception at ICML	2021
Self-Supervised Learning: Theory and Practice at NeurIPS	2020
Women in Machine Learning at NeurIPS	2016, 2018

PhD Qualifier Committees

Michelle Zhao, <i>Examining the Role of Adaptation in Human-Robot Collaboration</i>	2023
Adam Villaflor, <i>Fine-Tuning Offline Reinforcement Learning with Model-Based Policy Optimization</i>	2021

OLIN COLLEGE SERVICE

College as a Living Lab Sustainability Changemakers, Committee Member 2024 – present

Post Graduate Planning, Faculty Partner 2023 – 2024

Advised students navigating graduate school and fellowship applications. Provided feedback on written materials and made suggestions for students planning different career trajectories.

Academic Advising, Student Advisor 2023 – 2025

Served as academic advisor to fourteen students. Oversaw course registration process and organized one-on-one and group check-ins.

CARNEGIE MELLON SERVICE

Robotics Institute PhD Retreat, Organizer 2022

Secured over \$15,000 in funding from multiple sources to organize the department's first PhD Student retreat. Managed 10-person organizing team to orchestrate the overnight trip for 72 attendees.

School of Computer Science Teaching Assistant Awards Committee, Committee Member 2021

Read nomination packets and participated in awards selection as awards committee student representative.

Robotics Institute Faculty Hiring Committee, Committee Member 2021

Contributed to faculty hiring committee as a full member, including reading packets, interviewing all 16 candidates selected for visits, and soliciting and consolidating feedback from the department.

AI Mentoring Program, Organizer 2018 – 2021

Founded program with goal of involving more women and underrepresented minorities in AI research. Since 2018, the program has cumulatively matched 712 undergraduates with PhD student mentors.

SCS Dean's Advisory Committee, Founding Member 2019 – 2021

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

Robotics Institute Director Search, Interview Committee Member 2021

Interviewed candidates and elevated student interests as representative in department chair search.

OurCS, Committee Member 2019

Co-organized research conference for undergraduate women with Dr. Carol Frieze. Initiated scholarship program and secured \$5,000 in travel grants for students from Mexico, Ghana, Uganda, and Ethiopia.

OUTSIDE INTERESTS

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