Daniel Seita

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Employment (Since PhD)

Assistant Professor **August 2023 — Present**
University of Southern California Los Angeles, CA

- I am a tenure-track Assistant Professor with standard research, teaching, advising, and service duties.

Post-Doc **Sept 2021 — July 2023**
Carnegie Mellon University, Robotics Institute (advisor: David Held) Pittsburgh, PA

Education

University of California, Berkeley. PhD, Computer Science. GPA: 3.90/4.00 **Awarded 2021**
Advised by John Canny and Ken Goldberg.

Williams College. BA, Computer Science and Mathematics (double major), GPA: 3.90/4.00 **Awarded 2014**

Research Interests

My research interests are in robotics, computer vision, and machine learning, with a focus on robot manipulation of diverse, complex, and deformable objects. I am interested in learning novel and/or multimodal observation and action representations that can lead to more sample-efficient and reliable learning, and which I hope will advance robot manipulation.

Publications (Conferences and Journals)

A list of these publications is also available on my Google Scholar page.
Asterisks $(^*)$ indicate equal first authorship, daggers $(^\dagger)$ indicate equal non-first authorship.

1. Shangguan, Z., **Seita**, **D.** & Rostami, M. Cross-domain Multi-modal Few-shot Object Detection via Rich Text. *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)* (2025).
2. Jiang, H., Wang†, Y., Zhou†, H. & **Seita**, **D.** Learning to Singulate Objects in Packed Environments using a Dexterous Hand. *International Symposium of Robotics Research (ISRR)* (2024).
3. Raval*, V., Zhao*, E., Zhang, H., Nikolaidis, S. & **Seita**, **D.** GPT-Fabric: Smoothing and Folding Fabric by Leveraging Pre-Trained Foundation Models. *International Symposium of Robotics Research (ISRR)* (2024).
4. Liu, I.-C., He, S., **Seita**†, **D.** & Sukhatme†, G. VoxAct-B: Voxel-Based Acting and Stabilizing Policy for Bimanual Manipulation. *Conference on Robot Learning (CoRL)* (2024).
5. Hu, H., Qian†, F. & **Seita**†, **D.** Learning Granular Media Avalanche Behavior for Indirectly Manipulating Obstacles on a Granular Slope. *Conference on Robot Learning (CoRL)* (2024).
6. Chen, L. Y., Shi, B., Lin, R., **Seita**, **D.**, Ahmad, A., Cheng, R., Kollar, T., Held, D. & Goldberg, K. Bagging by Learning to Singulate Layers Using Interactive Perception. *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)* (2023).
7. Chen, L. Y., Shi, B., **Seita**, **D.**, Cheng, R., Kollar, T., Held, D. & Goldberg, K. AutoBag: Learning to Open Plastic Bags and Insert Objects. *IEEE International Conference on Robotics and Automation (ICRA)* (2023).
8. **Seita**, **D.**, Wang†, Y., Shetty†, S. J., Li†, E. Y., Erickson, Z. & Held, D. ToolFlowNet: Robotic Manipulation with Tools via Predicting Tool Flow from Point Clouds. *Conference on Robot Learning (CoRL)* (2022).
9. Tirumala*, S., Weng*, T., **Seita***, **D.**, Kroemer, O., Temel, Z. & Held, D. Learning to Singulate Layers of Cloth using Tactile Feedback. *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)* (2022).
10. Chen*, L. Y., Huang*, H., Novoseller, E., **Seita**, **D.**, Ichnowski, J., Laskey, M., Cheng, R., Kollar, T. & Goldberg, K. Efficiently Learning Single-Arm Fling Motions to Smooth Garments. *International Symposium of Robotics Research (ISRR)* (2022).
11. Hwang, M., Ichnowski, J., Thananjeyan, B., **Seita**, **D.**, Paradis, S., Fer, D., Low, T. & Goldberg, K. Automating Surgical Peg Transfer: Calibration with Deep Learning Can Exceed Speed, Accuracy, and Consistency of Humans. *IEEE Transactions on Automation Science and Engineering (TASE)* (2022).

12. Lim*, V., Huang*, H., Chen, Y., Wang, J., Ichnowski, J., **Seita**, **D.**, Laskey, M. & Goldberg, K. Planar Robot Casting with Real2Sim2Real Self-Supervised Learning. *IEEE International Conference on Robotics and Automation (ICRA)* (2022).
13. Hoque*, R., **Seita***, **D.**, Balakrishna, A., Ganapathi, A., Tanwani, A., Jamali, N., Yamane, K., Iba, S. & Goldberg, K. VisuoSpatial Foresight for Physical Sequential Fabric Manipulation. *Autonomous Robots (AURO)* (2021).
14. Hoque, R., Balakrishna, A., Putterman, C., Luo, M., Brown, D. S., **Seita**, **D.**, Thananjeyan, B., Novoseller, E. & Goldberg, K. LazyDAgger: Reducing Context Switching in Interactive Imitation Learning. *IEEE Conference on Automation Science and Engineering (CASE)* (2021).
15. **Seita**, **D.**, Florence, P., Tompson, J., Coumans, E., Sindhwani, V., Goldberg, K. & Zeng, A. Learning to Rearrange Deformable Cables, Fabrics, and Bags with Goal-Conditioned Transporter Networks. *IEEE International Conference on Robotics and Automation (ICRA)* (2021).
16. Zhang, H., Ichnowski, J., **Seita**, **D.**, Wang, J., Huang, H. & Goldberg, K. Robots of the Lost Arc: Self-Supervised Learning to Dynamically Manipulate Fixed-Endpoint Cables. *IEEE International Conference on Robotics and Automation (ICRA)* (2021).
17. Ganapathi, A., Sundaresan, P., Thananjeyan, B., Balakrishna, A., **Seita**, **D.**, Grannen, J., Hwang, M., Hoque, R., Gonzalez, J., Jamali, N., Yamane, K., Iba, S. & Goldberg, K. Learning Dense Visual Correspondences in Simulation to Smooth and Fold Real Fabrics. *IEEE International Conference on Robotics and Automation (ICRA)* (2021).
18. Paradis, S., Hwang, M., Thananjeyan, B., Ichnowski, J., **Seita**, **D.**, Fer, D., Low, T., Gonzalez, J. E. & Goldberg, K. Intermittent Visual Servoing: Efficiently Learning Policies Robust to Instrument Changes for High-precision Surgical Manipulation. *IEEE International Conference on Robotics and Automation (ICRA)* (2021).
19. **Seita**, **D.**, Ganapathi, A., Hoque, R., Hwang, M., Cen, E., Tanwani, A. K., Balakrishna, A., Thananjeyan, B., Ichnowski, J., Jamali, N., Yamane, K., Iba, S., Canny, J. & Goldberg, K. Deep Imitation Learning of Sequential Fabric Smoothing From an Algorithmic Supervisor. *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)* (2020).
20. Hwang, M., Thananjeyan, B., Paradis, S., **Seita**, **D.**, Ichnowski, J., Fer, D., Low, T. & Goldberg, K. Efficiently Calibrating Cable-Driven Surgical Robots with RGBD Fiducial Sensing and Recurrent Neural Networks. *IEEE Robotics and Automation Letters (RA-L)* (2020).
21. Hoque*, R., **Seita***, **D.**, Balakrishna, A., Ganapathi, A., Tanwani, A., Jamali, N., Yamane, K., Iba, S. & Goldberg, K. VisuoSpatial Foresight for Multi-Step, Multi-Task Fabric Manipulation. *Robotics: Science and Systems (RSS)* (2020).
22. Hwang*, M., **Seita***, **D.**, Thananjeyan, B., Ichnowski, J., Paradis, S., Fer, D., Low, T. & Goldberg, K. Applying Depth-Sensing to Automated Surgical Manipulation with a da Vinci Robot. *International Symposium on Medical Robotics (ISMR)* (2020).
23. **Seita***, **D.**, Jamali*, N., Laskey*, M., Berenstein, R., Tanwani, A. K., Baskaran, P., Iba, S., Canny, J. & Goldberg, K. Deep Transfer Learning of Pick Points on Fabric for Robot Bed-Making. *International Symposium of Robotics Research (ISRR)* (2019).
24. Pan, X., **Seita**, **D.**, Gao, Y. & Canny, J. Risk Averse Robust Adversarial Reinforcement Learning. *IEEE International Conference on Robotics and Automation (ICRA)* (2019).
25. **Seita**, **D.**, Krishnan, S., Fox, R., McKinley, S., Canny, J. & Goldberg, K. Fast and Reliable Autonomous Surgical Debridement with Cable-Driven Robots Using a Two-Phase Calibration Procedure. *IEEE International Conference on Robotics and Automation (ICRA)* (2018).
26. **Seita**, **D.**, Pan, X., Chen, H. & Canny, J. An Efficient Minibatch Acceptance Test for Metropolis-Hastings. *Conference on Uncertainty in Artificial Intelligence (UAI)* (2017).
27. **Seita**, **D.**, Pokorny, F. T., Mahler, J., Kragic, D., Franklin, M., Canny, J. & Goldberg, K. Large-Scale Supervised Learning of the Grasp Robustness of Surface Patch Pairs. *IEEE International Conference on Simulation, Modeling, and Programming for Autonomous Robots (SIMPAR)* (2016).

Publications (Workshops)

28. **Seita**, **D.**, Gopal, A., Mandi, Z. & Canny, J. DCUR: Data Curriculum for Teaching via Samples with Reinforcement Learning. *NeurIPS Workshop on Offline Reinforcement Learning* (2021).
29. **Seita**, **D.**, Kerr, J., Canny, J. & Goldberg, K. Initial Results on Grasping and Lifting Physical Deformable Bags with a Bimanual Robot. *IROS Workshop on Deformable Object Manipulation* (2021).
30. **Seita**, **D.**, Tang, C., Rao, R., Chan, D., Zhao, M. & Canny, J. ZPD Teaching Strategies for Deep Reinforcement Learning from Demonstrations. *Deep Reinforcement Learning Workshop, NeurIPS* (2019).

Teaching at USC

Robotic Manipulation (CS 699)	**Fall 2024**
Introduction to Robotics (CS 545)	**Spring 2024**
Deep Learning for Robotic Manipulation (CS 699)	**Fall 2023**

Mentoring: PhD Students (Advisees) at USC

- Ayano Hiranaka (2024-), co-advised with Erdem Bıyık
- Minjune Hwang (2024-)
- Yunshuang Li (2024-), co-advised with Gaurav Sukhatme
- Yiyang Ling (2024-)
- Zeyu Shangguan (2024-)

Mentoring: Undergrads and Master's Students

Below, I only list students who I worked with for at least one semester or one summer; see the lab website for more details.

Name	Institution	Status	Years	Next
Abhinav Pillai	IIT Kharagpur	Undergrad (REU)	2024	
Gayathri Rajesh	NIT Trichy	Undergrad (IUSSTF)	2024	
Ebonee Davis	MIT	Undergrad (SURE)	2024	
Wenhao Liu	USC	MS EE	2024-	
Jonathan Zamora-Anaya	USC	MS CS	2024-	
Rajas Chitale	USC	MS CS	2024-	
Hanyang Zhou	USC	MS CS	2024-	
Harshitha Rajaprakash	USC	MS CS	2024-	
Karan Owalekar	USC	MS CS	2024-	
Charlene Yuen	USC	MS CS	2023-	
Enyu Zhao	USC	MS CS	2023-	
Anupam Patil	USC	MS CS	2023-2024	
Vedant Raval	USC	MS CS	2023-	
Dhanush Penmetsa	USC	MS ECE	2023-	
Yuhai Wang	USC	MS Analytics	2023-	
David Kim	USC	Undergrad	2024-	
Sam Burns	USC	Undergrad	2024-	
Maria Guerrero Cordoba	USC	Undergrad	2024-	
Letian Zhang	USC	Undergrad	2024-	
Jason Chen	USC	Undergrad	2024-	
Oluwatobiloba Adesanya	USC	Undergrad	2024-	
Jonathan Ong	USC	Undergrad	2024-	
Rida Faraz	USC	Undergrad	2024-	
Siddarth Rudraraju	USC	Undergrad	2024	
Anisha Chitta	USC	Undergrad	2024	
Zitong (Cynthia) Huang	USC	Undergrad	2024	
Vijay Kumaravelrajan	USC	Undergrad	2024	
Hao Jiang	USC	Undergrad	2023-	
Emily K. Zhu	USC	Undergrad	2023-2024	
Qian (Peter) Wang	USC	Undergrad	2023-2024	Yale CS PhD
Ce (Chris) Wang	USC	Visitor	2023-2024	Ambarella
Mansi Agarwal	CMU	MS Robotics	2023	Amazon
Sashank Tirumala	CMU	MS Robotics	2021-2023	AIM Intelligent Machines
Sarthak Shetty	CMU	MS MechEng	2021-2023	Path Robotics
Edward Li	CMU	Undergrad	2021-2023	
Vincent Lim	UC Berkeley	Undergrad	2021-2022	
Baiyu Shi	UC Berkeley	Undergrad	2022-2023	Stanford ME PhD
Zhao Mandi	UC Berkeley	Undergrad	2019-2021	Stanford EE PhD
Abhinav Gopal	UC Berkeley	Undergrad/MS	2020-2021	Berkeley EECS MS → Rubbrband
Harry Zhang	UC Berkeley	Undergrad	2020-2021	CMU MS Robotics → MIT AA/Stat PhD

Jonathan Wang	UC Berkeley	Undergrad	2020-2021	Quant Research at DRW
Samuel Paradis	UC Berkeley	Undergrad/MS	2019-2021	Google
Edward Cen	UC Berkeley	Undergrad	2019	Hudson River Trading
Aditya Ganapathi	UC Berkeley	Undergrad	2019-2021	Berkeley EECS MS → Grabango
Ryan Hoque	UC Berkeley	Undergrad/MS	2018-2020	Berkeley EECS PhD → Apple

Research Talks

Representations for Dexterous Robot Manipulation

Osaka University, Japan (Robotic Manipulation Lab)	December 2024
Kyoto University, Japan (Human-Robot Interaction Lab)	December 2024
University of California, Irvine (AI/ML Seminar)	November 2024

Representations in Robot Manipulation: Learning to Manipulate Ropes, Fabrics, Bags, Liquids, and Plants

University of Illinois, Urbana-Champaign (CS)	April 2023
University of Toronto (CS)	April 2023
University of Southern California (CS)	April 2023
Princeton University (ECE)	April 2023
Northeastern University (CS)	March 2023
Duke University (ECE)	March 2023
University of Wisconsin, Madison (CS)	March 2023
New York University (CS/ECE)	March 2023
Columbia University (MechE)	March 2023
University of Washington	November 2022
University of Michigan	November 2022
Cornell University	October 2022
Carnegie Mellon University	September 2022

Recent Progress in Deformable Object Manipulation

Carnegie Mellon University, lab of Prof. Wenzhen Yuan	May 2022
Carnegie Mellon University, lab of Prof. Zackory Erickson	January 2022

Deformable Object Manipulation with Model-Free, Model-Based, and Transporter Network Methods

University of California, Berkeley, BAIR Seminar	April 2021
Carnegie Mellon University, lab of Prof. David Held	April 2021
Stanford University, multiple labs	April 2021
Williams College, Colloquium	April 2021
University of Toronto, AI in Robotics Seminar	March 2021
Siemens Corporation	February 2021

Object- and Action-Centric Learning

NeurIPS 2020 Robot Learning Workshop (invited to assist Research Scientist Pete Florence).	December 2020

Workshop Organization

Robotic Manipulation of Deformable Objects	IROS 2024
Agile Robotics: From Perception to Dynamic Action	ICRA 2024
3D Visual Representations for Robot Manipulation	ICRA 2024
Representing and Manipulating Deformable Objects	ICRA 2024
Representing and Manipulating Deformable Objects	ICRA 2023
Representing and Manipulating Deformable Objects	ICRA 2022

Awards and Honors

OpenAI Researcher Access Program (**$5000 API credits**).	**2024**
Best Industrial Robotics Research for Applications Finalist at IROS 2023.	**2023**
Best Paper Award at IROS 2022 ROMADO-SI Workshop.	**2022**
Invited to attend RSS Pioneers.	**2022**
Eugene L. Lawler Prize. (**$2000**)	**2019**
Honorable Mention, Best Student Paper Award at UAI 2017. (**$500**)	**2017**
Graduate Fellowships for STEM Diversity (GFSD) Fellowship, a 6-year fellowship for research. (**$120,000**)	**2015–2021**
Honorable Mention, NSF Graduate Research Fellowship.	**2015**
Berkeley Fellowship, a 2-year fellowship awarded to selected incoming UC Berkeley students. (**$59,000**)	**2014–2016**
Lucille B. Abt Scholarship, award by the AG Bell Association for the Deaf and Hard of Hearing. (**$7,500**)	**2014**

University or Department Service

- USC Robotics and Autonomous Systems Center (RASC), faculty advisor to students who run our robotics seminar and who run the blog website to promote the robotics research at USC (2024-Present)
- USC Robotics REU, organizer and mentor (Summer 2024)
- USC PhD Fellowship Committee (2024)
- Mentor for the CMU AI Mentoring Program (2021-2022)
- Primary maintainer for the Berkeley AI Research Blog (2017-2021)
- Assisted EECS faculty with reviewing PhD applications to Berkeley AI Research (2019-2020)

Academic Service

- **Accessibility Chair**: RSS 2025.
- **Area Chair**: CoRL 2024.
- **Associate Editor**: IROS 2022, IROS 2023, IROS 2024, RA-L 2024.
- **Registration Co-Chair** for RSS 2024.
- **Inclusion Co-Chair** for CoRL 2022 and CoRL 2023.
- **Organizing Committee** for RSS Pioneers 2023.
- **Paper Reviewing**: in the interest of full disclosure, *this webpage has a complete list of my paper reviewing duties*, with paper venues and the number of reviewed papers per year, for workshops, conferences, and journals.

Committees for Other Students

Name	Institution	Committees	Dates
Ishika Singh	USC	Qualifying Exam	10/2024
Junheng Li	USC	Qualifying Exam	10/2024
Jesse Zhang	USC	PhD Proposal	09/2024
Robby Costales	USC	Qualifying Exam	09/2024
Shihan Lu	USC	PhD Defense	07/2024
Grace Zhang	USC	Qualifying Exam	05/2024
Bingjie Tang	USC	PhD Proposal	05/2024
Romina Mir	USC	Qualifying Exam	04/2024
David Blanco Mulero	Aalto University	PhD Reviewer	12/2023
Gautam Salhotra	USC	PhD Defense	12/2023
Hejia Zhang	USC	PhD Proposal, Defense	11/2023, 04/2024
Jeremy Morgan	USC	Qualifying Exam	11/2023

Teaching and Guest Lectures (Prior to USC)

Guest lecture on deep Q-learning, Statistical Techniques for Robotics (CMU, CS 16-831), Prof. David Held	**Fall 2022**
Guest lecture on deep RL (National University of Singapore, CS5260), Prof. Yang You	**Spring 2022**
Guest lecture on imitation learning, Deep Reinforcement Learning (CMU, CS 10-703), Prof. Katerina Fragkiadaki	**Fall 2021**
Guest lecture on policy gradients, Statistical Techniques for Robotics (CMU, CS 16-831), Prof. David Held	**Fall 2021**
TA for Designing, Visualizing, & Understanding Deep Neural Networks (Berkeley, CS 182/282A), Prof. John Canny	**Spring 2019**
TA for Designing, Visualizing, & Understanding Deep Neural Networks (Berkeley, CS 182/282A), Prof. John Canny	**Fall 2016**

Other Talks and Outreach

- (04/2022) Panelist speaker for a Exploring Computing and Information Sciences/Technology for Deaf and Hard-of-Hearing, hosted by the University of Washington and Gallaudet University.
- (02/2021) Panelist speaker for a "Society, Robots and Us" conversation, on people with disabilities and robots.
- (02/2021) Panelist speaker for Explore Computer Science Research Workshop, hosted by Gallaudet University.
- (01/2021) Panelist speaker for the OurCS@UW+AccessComputing discussion on managing disability access in academia/work.

Work Experience (Prior to Finishing PhD)

Research Intern **May 2020 — Sept 2020**
Google New York City, NY (Virtual)

- Worked in the Google AI robotics team, hosted by Research Scientist Andy Zeng. My project was on robot manipulation using simulators and machine learning for deformable object manipulation.

Research Intern **May 2016 — Aug 2016**
National Security Agency Laurel, MD

- Worked on a research project to utilize reinforcement learning agents for the problem of computer network defense.

Consultant **May 2015 — Aug 2015**
Rochester Institute of Technology Rochester, NY (Virtual)

- Worked as a consultant for an REU at RIT which focused on technology accessibility research for people with disabilities, and provided feedback on students' research progress. REU supervisor: Prof. Raja Kushalnagar.

Other Information

- Passed my one hour qualifying oral exam (04/2018), to become officially a "PhD candidate." Committee members: John Canny, Ken Goldberg, Sergey Levine, and Masayoshi Tomizuka.
- Achieved second highest score of 8.25/10, out of 12 Ph.D. students taking the Berkeley AI preliminary oral exams (08/2015).
- Born deaf, can speak in English and am fluent in American Sign Language.