

# Daniel Seita

seita@usc.edu  
<https://danielseita.github.io>  
Last Updated: April 12, 2024.

## EMPLOYMENT (SINCE PHD)

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### Assistant Professor

University of Southern California

August 2023 — Present

Los Angeles, CA

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

### Post-Doc

Carnegie Mellon University

Sept 2021 — July 2023

Pittsburgh, PA

- Advised by Prof. David Held in the Robotics Institute, specializing on algorithms and learning for robot manipulation of deformable objects. Duties also include mentoring students, some teaching, and assisting with grant writing.

## EDUCATION

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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

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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)

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A list of these publications is also available on [my Google Scholar page](#).

Asterisks (\*) indicate equal first authorship, daggers (†) indicate equal non-first authorship.

1. Raval, V., Zhao, E., Zhang, H., Nikolaidis, S. & **Seita, D.** GPT-Fabric: Folding and Smoothing Fabric by Leveraging Pre-Trained Foundation Models. *Under Review* (2024).
2. Shangguan, Z., **Seita, D.** & Rostami, M. Cross-domain Multi-modal Few-shot Object Detection via Rich Text. *arXiv preprint arXiv:2403.16188* (2024).
3. 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).
4. 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).
5. **Seita, D.**, Wang<sup>†</sup>, Y., Shetty<sup>†</sup>, S. J., Li<sup>†</sup>, E. Y., Erickson, Z. & Held, D. ToolFlowNet: Robotic Manipulation with Tools via Predicting Tool Flow from Point Clouds. *Conference on Robot Learning (CoRL)* (2022).
6. 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).
7. 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 on Robotics Research (ISRR)* (2022).
8. 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).
9. 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).
10. 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).

11. 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).
12. **Seita, D.**, Florence, P., Tompson, J., Coumans, E., Sindhvani, 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).
13. 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).
14. 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).
15. 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).
16. **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).
17. 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).
18. 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).
19. 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).
20. **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 on Robotics Research (ISRR)* (2019).
21. Pan, X., **Seita, D.**, Gao, Y. & Canny, J. Risk Averse Robust Adversarial Reinforcement Learning. *IEEE International Conference on Robotics and Automation (ICRA)* (2019).
22. **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).
23. **Seita, D.**, Pan, X., Chen, H. & Canny, J. An Efficient Minibatch Acceptance Test for Metropolis-Hastings. *Conference on Uncertainty in Artificial Intelligence (UAI)* (2017).
24. **Seita, D.**, Pokornyy, 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 (SIMPAN)* (2016).

## PUBLICATIONS (WORKSHOPS)

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25. **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).
26. **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).
27. **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

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Deep Learning for Robotic Manipulation (CS 699)  
 Introduction to Robotics (CS 545)  
 Deep Learning for Robotic Manipulation (CS 699)

Fall 2024  
 Spring 2024  
 Fall 2023

## MENTORING: PHD STUDENTS (ADVISEES) AT USC

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- Zeyu Shangguan (2024-)
- Yiyang Ling (2024-)
- Yunshuang Li (2024-), co-advised with Gaurav Sukhatme

## MENTORING: UNDERGRADS AND MASTER'S STUDENTS

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Name	Institution	Status	Years	Next
Abhinav Pillai	IIT Kharagpur	Undergrad	2024	
Gayathri Rajesh	NIT Trichy	Undergrad	2024	
Kartika Santoso	Pomona	Undergrad	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-	
Vedant Raval	USC	MS CS	2023-	
Dhanush Penmetsa	USC	MS ECE	2023-	
Yuhai Wang	USC	MS Analytics	2023-	
Letian Zhang	USC	Undergrad	2024-	
Oluwatobiloba Adesanya	USC	Undergrad	2024-	
Jonathan Ong	USC	Undergrad	2024-	
Zitong (Cynthia) Huang	USC	Undergrad	2024-	
Rida Faraz	USC	Undergrad	2024-	
Vijay Kumaravelrajan	USC	Undergrad	2024-	
Siddarth Rudraraju	USC	Undergrad	2024-	
Anisha Chitta	USC	Undergrad	2024-	
Hao Jiang	USC	Undergrad	2023-	
Emily K. Zhu	USC	Undergrad	2023-2024	
Qian (Peter) Wang	USC	Undergrad	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	
Baiyu Shi	UC Berkeley	Undergrad	2022-2023	Stanford ME PhD
Vincent Lim	UC Berkeley	Undergrad	2021-2022	
Zhao Mandi	UC Berkeley	Undergrad	2019-2021	Stanford CS 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

## COMMITTEES FOR OTHER STUDENTS

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Name	Institution	Committees	Dates
Grace Zhang	USC	Qualifying Exam	05/2024
Romina Mir	USC	Qualifying Exam	04/2024
Bingjie Tang	USC	PhD Proposal	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

## RESEARCH TALKS

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

University of Illinois, Urbana-Champaign	April 2023
University of Toronto	April 2023
University of Southern California	April 2023
Princeton University	April 2023
Northeastern University	March 2023
Duke University	March 2023
University of Wisconsin – Madison	March 2023
New York University	March 2023
Columbia University	March 2023
University of Washington	Nov. 2022
University of Michigan	Nov. 2022
Cornell University	Oct. 2022
Carnegie Mellon University	Sept. 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	Jan. 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	Feb. 2021

### Object- and Action-Centric Learning

<a href="#">NeurIPS 2020 Robot Learning Workshop</a> (invited to assist Research Scientist Pete Florence).	Dec. 2020
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## WORKSHOP ORGANIZATION

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<a href="#">Agile Robotics: From Perception to Dynamic Action</a>	ICRA 2024
<a href="#">3D Visual Representations for Robot Manipulation</a>	ICRA 2024
<a href="#">Representing and Manipulating Deformable Objects</a>	ICRA 2024
<a href="#">Representing and Manipulating Deformable Objects</a>	ICRA 2023
<a href="#">Representing and Manipulating Deformable Objects</a>	ICRA 2022

## UNIVERSITY OR DEPARTMENT SERVICE

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- USC PhD Fellowship Committee (2024)
- Mentor for the CMU AI Mentoring Program (2021-2022)
- Primary maintainer for the [Berkeley AI Research Blog](#); responsible for advertising and soliciting posts. (2017-2021)
- Assisted EECS faculty with reviewing PhD applications to Berkeley AI Research. (2019-2020)

## ACADEMIC SERVICE

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- **Registration Co-Chair** for RSS 2024.
- **Inclusion Co-Chair** for CoRL 2022 and CoRL 2023.
- **Organizing Committee** for RSS Pioneers 2023.
- **Associate Editor**: IROS 2022, IROS 2023, IROS 2024, RA-L 2024.
- **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.

## AWARDS AND HONORS

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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

## TEACHING AND GUEST LECTURES (PRIOR TO USC)

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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

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- (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)

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<b>Research Intern</b> Google	<b>May 2020 — Sept 2020</b> 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.	
<b>Research Intern</b> National Security Agency	<b>May 2016 — Aug 2016</b> Laurel, MD
• Worked on a research project to utilize reinforcement learning agents for the problem of computer network defense.	
<b>Consultant</b> Rochester Institute of Technology	<b>May 2015 — Aug 2015</b> 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

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- 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.