

# Chelsea Finn

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## Education

<b>University of California, Berkeley</b> , Berkeley CA PhD, Department of Electrical Engineering and Computer Science Advisers: Pieter Abbeel, Sergey Levine	2014 – present
<b>Massachusetts Institute of Technology</b> , Cambridge MA Bachelor of Science, Electrical Engineering and Computer Science	2010 – 2014 GPA: 4.97/5.0

## Research and Industry Experience

<b>Berkeley Artificial Intelligence Research (BAIR)</b> Research Assistant	2014 – present
<b>Google, Inc.</b> , Brain Team, Research Intern	2016
<b>Counsyl, Inc.</b> , Automation Engineering Intern	2014
<b>MIT CSAIL: Robotics, Vision, and Sensor Networks Group</b> , with Seth Teller	2013 – 2014
<b>Google, Inc.</b> , Software Engineering Intern	2012, 2013
<b>MIT Earth Signals and Systems Group</b> , with Sai Ravela	2012 – 2013
<b>MIT Media Lab: Human Dynamics Group</b> , with Yves-Alexandre de Montjoye	2011
<b>Sandia National Labs</b> , Intern	2010

## Teaching Experience

### Instructor

<i>Berkeley CS294-112: Deep Reinforcement Learning</i> As co-instructor of new course, created & gave lectures, designed new assignments.	Spring 2017
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### Teaching Assistant

<i>Berkeley CS188 Introduction to Artificial Intelligence</i> Taught weekly problem solving sections, head exam composer, gave 2 lectures.	Spring 2015
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<i>MIT 6.008 Introduction to Inference</i> Taught bi-weekly recitation sections on inference algorithms and graphical models.	Spring 2014
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<i>MIT 6.141 Robotics: Science and Systems I</i> Prepared lab assignments, answered questions, and evaluated students.	Spring 2014
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<i>MIT 6.02 Digital Communication Systems</i> Answered questions and helped students debug solutions.	Spring 2014
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### Guest Lectures

<i>Advanced Model-based Reinforcement Learning</i> in CS294-112: Deep Reinforcement Learning, Berkeley.	Fall 2017
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<i>Model-based Reinforcement Learning</i> in Deep Reinforcement Learning Bootcamp, Berkeley.	Fall 2017
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<i>Inverse Reinforcement Learning</i> in Deep Reinforcement Learning Bootcamp, Berkeley.	Fall 2017
<i>Tutorial on Deep Reinforcement Learning, Decision Making, and Control</i> at the International Conference on Machine Learning (ICML).	Summer 2017
<i>Deep Visuomotor Learning</i> in CS280: Computer Vision, Berkeley.	Spring 2017
<i>Soft Optimality and Inverse Reinforcement Learning</i> in CS234: Reinforcement Learning, Stanford.	Spring 2017
<i>Deep Visuomotor Learning</i> in CS280: Computer Vision, Berkeley.	Spring 2016
<i>Guided Policy Search Methods</i> in CS294: Deep Reinforcement Learning, Berkeley.	Fall 2015

## Honors and Awards

<b>Rising Stars in EECS</b> Awarded to 70 EECS graduate and postdoctoral women	2017
<b>C.V. Ramamoorthy Distinguished Research Award</b> For outstanding contributions to a new research area in computer science and engineering	2017
<b>ICRA Best Cognitive Robotics Paper Finalist</b> <i>"Deep Visual Foresight for Planning Robot Motion"</i>	2017
<b>Tong Leong Lim Pre-Doctoral Prize</b> For achieving the highest distinction in the pre-doctoral examination	2016
<b>Computing Community Consortium (CCC) Blue Sky Ideas Award</b> <i>"End-to-end Training of Deep Visuomotor Policies"</i>	2015
<b>National Science Foundation Graduate Research Fellowship</b>	2015-present
<b>National Defense Science and Engineering Graduate Fellowship</b> ( <i>declined</i> )	2015
<b>IEEE-HKN Alton B. Zerby and Carl T. Koerner Outstanding Student Award</b> Awarded annually to one undergraduate student in the United States	2015
<b>SanDisk Fellowship</b>	2015
<b>UC Berkeley EECS Department Fellowship</b>	2014
<b>MIT SuperUROP Outstanding Research Presentation Award</b> <i>"Real-time Text Detection in Human Scenes"</i>	2014

## Invited Talks

**Efficiency through Learning to Learn.** *Clarifai*. April 2018.

**Generalization and Self-Supervision in Deep Robotic Learning.**

*Toyota Technical Institute in Chicago (TTIC)*. February 2018.

*Stanford University*. March 2018.

*MIT*. March 2018.

**Learning Versatile Behavior and Reusable Models through Real-World Interaction.** *Caltech Young Investigator Lecture*. February 2018.

**Model-Agnostic Meta-Learning: Universality, Inductive Bias, and Weak Supervision.** *NIPS Workshop on Meta-Learning*. December 2017.

**Deep Reinforcement Learning, Decision Making, and Control.** *ICML tutorial*. August 2017.

**Deep Predictive Learning for Acquiring Vision-Based Skills.** *ICML Workshop on Reinforcement Learning*. August 2017.

**Learning Representations for Versatile Behavior.** *RSS Workshop on New Frontiers for Deep Learning in Robotics*. July 2017.

**Learning through Interaction: Generalization in Robot Reinforcement Learning.**

*Symposium on Robot Learning, Berkeley, CA*. May 2017.

*MIT*. April 2017.

*Stanford University*. March 2017.

**The Guided Policy Search Codebase.** *Open-Source Software for Decision Making Workshop, Stanford University*. March 2017.

**End-to-End Deep Robotic Learning.** *Re-work Deep Learning Summit, San Francisco*. January 2017.

**Guided Cost Learning and Connections to Generative Adversarial Modeling.** *NIPS Deep Learning Symposium*. December 2016.

**Large Scale Self-Supervised Robotic Learning.**

*NIPS Deep Reinforcement Learning Workshop*. December 2016.

*NIPS Neurorobotics Workshop*. December 2016.

**Robotic Visuomotor Learning.** *3DV Tutorial: Workshop on Understanding 3D and Visuomotor Learning*. October 2016.

**Learning Visual State Spaces and Objectives.** *Google DeepMind*. May 2016.

**Learning Visuomotor Skills.** *OpenAI*. March 2016.

**Robotic Visuomotor Learning.** *Redwood Center for Theoretical Neuroscience*. November 2015.

**End-to-End Training of Deep Visuomotor Policies.** *Google, Inc.*. March 2015.

## Preprints

Aravind Srinivas, Allan Jabri, Pieter Abbeel, Sergey Levine, **Chelsea Finn**. Universal Planning Networks. *Under Review*. 2018.

Ignasi Clavera, Anusha Nagabandi, Ronald S. Fearing, Pieter Abbeel, Sergey Levine, **Chelsea Finn**. Learning to Adapt: Meta-Learning for Model-Based Control. *Under Review*. 2018.

Alex Lee, Richard Zhang, Frederik Ebert, Pieter Abbeel, **Chelsea Finn**, Sergey Levine. Stochastic Adversarial Video Prediction. *Under Review*. 2018.

## Journal and Conference Publications

[22] Tianhe Yu\*, **Chelsea Finn\***, Annie Xie, Sudeep Dasari, Pieter Abbeel, Sergey Levine. One-Shot Imitation from Observing Humans via Domain-Adaptive Meta-Learning. *Robotics: Science and Systems (RSS)*. 2018.

- [21] Deirdre Quillen, Eric Jang, Ofir Nachum, **Chelsea Finn**, Julian Ibarz, Sergey Levine. Deep Reinforcement Learning for Vision-Based Robotic Grasping: A Simulated Comparative Evaluation of Off-Policy Methods. *International Conference on Robotics and Automation (ICRA)*. 2018.
- [20] **Chelsea Finn**, Sergey Levine. Meta-Learning and Universality: Deep Representations and Gradient Descent can Approximate any Learning Algorithm. *International Conference on Learning Representations (ICLR)*. 2018.
- [19] Erin Grant, **Chelsea Finn**, Sergey Levine, Trevor Darrell, Tom Griffiths. Recasting Gradient-Based Meta-Learning as Hierarchical Bayes. *International Conference on Learning Representations (ICLR)*. 2018.
- [18] Mohammad Babaeizadeh, **Chelsea Finn**, Dumitru Erhan, Roy H. Campbell, Sergey Levine. Stochastic Variational Video Prediction. *International Conference on Learning Representations (ICLR)*. 2018.
- [17] **Chelsea Finn\***, Tianhe Yu\*, Tianhao Zhang, Pieter Abbeel, Sergey Levine. One-Shot Visual Imitation Learning via Meta-Learning. *Conference on Robot Learning (CoRL)*. 2017.
- [16] Frederik Ebert, **Chelsea Finn**, Alex Lee, Sergey Levine. Self-Supervised Visual Planning with Temporal Skip-Connections. *Conference on Robot Learning (CoRL)*. 2017.
- [15] **Chelsea Finn**, Pieter Abbeel, Sergey Levine. Model-Agnostic Meta-Learning for Fast Adaptation of Deep Networks. *International Conference on Machine Learning (ICML)*. 2017.
- [14] **Chelsea Finn**, Tianhe Yu, Justin Fu, Pieter Abbeel, Sergey Levine. Generalizing Skills with Semi-Supervised Reinforcement Learning. *International Conference on Learning Representations (ICLR)*. 2017.
- [13] **Chelsea Finn**, Sergey Levine. Deep Visual Foresight for Planning Robot Motion. *International Conference on Robotics and Automation (ICRA)*. 2017.
- [12] William Montgomery\*, Anurag Ajay\*, **Chelsea Finn**, Pieter Abbeel, Sergey Levine. Reset-Free Guided Policy Search: Efficient Deep Reinforcement Learning with Stochastic Initial States. *International Conference on Robotics and Automation (ICRA)*. 2017.
- [11] **Chelsea Finn**, Ian Goodfellow, Sergey Levine. Unsupervised Learning for Physical Interaction through Video Prediction. *Neural Information Processing Systems (NIPS)*. 2016.
- [10] Eric Tzeng, Coline Devin, Judy Hoffman, **Chelsea Finn**, Pieter Abbeel, Sergey Levine, Kate Saenko and Trevor Darrell. Adapting Deep Visuomotor Representations with Weak Pairwise Constraints. *Workshop on the Algorithmic Foundations of Robotics (WAFR)*. 2016.
- [9] **Chelsea Finn**, Sergey Levine, Pieter Abbeel. Guided Cost Learning: Deep Inverse Optimal Control via Policy Optimization. *International Conference on Machine Learning (ICML)*. 2016.
- [8] **Chelsea Finn**, Xin Yu Tan, Yan Duan, Trevor Darrell, Sergey Levine, Pieter Abbeel. Deep Spatial Autoencoders for Visuomotor Learning. *International Conference on Robotics and Automation (ICRA)*. 2016.
- [7] Marvin Zhang, Zoe McCarthy, **Chelsea Finn**, Sergey Levine, Pieter Abbeel. Learning Deep Neural Network Policies with Continuous Memory States. *International Conference on Robotics and Automation (ICRA)*. 2016.
- [6] Sergey Levine\*, **Chelsea Finn\***, Trevor Darrell, Pieter Abbeel. End-to-End Training of Deep Visuomotor Policies. *Journal of Machine Learning (JMLR)*. 2016.

[5] Hsueh-Cheng Wang, **Chelsea Finn**, Liam Paull, Michael Kaess, Ruth Rosenholtz, Seth Teller, John Leonard. Bridging text spotting and SLAM with junction features. *International Conference on Intelligent Robots and Systems (IROS)*. 2015.

[4] Dylan Hadfield-Menell, Alex Xavier Lee, **Chelsea Finn**, Eric Tzeng, Sandy Huang, Pieter Abbeel. Beyond Lowest-Warping Cost Action Selection in Trajectory Transfer. *International Conference on Robotics and Automation (ICRA)*. 2015.

[3] James Duyck, **Chelsea Finn**, Andy Hutcheon, Pablo Vera, Joaquin Salas, Sai Ravela. Sloop: A pattern retrieval engine for individual animal identification. *Pattern Recognition*. 2014.

[2] **Chelsea Finn**, James Duyck, Andy Hutcheon, Pablo Vera, Joaquin Salas, Sai Ravela. Relevance feedback in biometric retrieval of animal photographs. *Mexican Conference on Pattern Recognition (MCP)*. 2014.

[1] Sai Ravela, James Duyck, **Chelsea Finn**. Vision-Based Biometrics for Conservation. *Mexican Conference on Pattern Recognition (MCP)*. 2013.

## Workshop Papers and Abstracts

**Chelsea Finn**, Pieter Abbeel, Sergey Levine. Lifelong Few-Shot Learning. *ICML Workshop on Lifelong Learning*. 2017.

**Chelsea Finn\***, Paul Christiano\*, Pieter Abbeel, Sergey Levine. A Connection between Generative Adversarial Networks, Inverse Reinforcement Learning, and Energy-based Models. *NIPS Workshop on Adversarial Training*. 2016.

Mark Woodward, **Chelsea Finn**. Active One-Shot Learning. *NIPS Deep Reinforcement Learning Workshop*. 2016.

**Chelsea Finn**, Lisa Anne Hendricks, Trevor Darrell Learning Compact Convolutional Neural Networks with Nested Dropout. *International Conference on Learning Representations (ICLR) – Workshop Contribution*. 2015.

## Mentoring and Advising

### Undergraduate research:

Nopphon Sirinart (currently PhD student at Stanford)

Justin Fu (currently PhD student at UC Berkeley)

Marvin Zhang (currently PhD student at UC Berkeley)

Anurag Ajay (currently PhD student at MIT)

Emily Scharff

Xin Yu Tan

Tianhe Yu

Annie Xie

Sudeep Dasari

### Masters research:

Frederik Ebert (currently PhD student at UC Berkeley)

### Independent research:

Mark Woodward (incoming Google AI resident)

Rosen Kralev

## Outreach

<b>Berkeley AI &amp; AI4ALL Camp</b> , Co-Organizer	2018
Organized 5-day camp for underprivileged high-school students Free camp with hands-on introduction to CS and AI, aiming to increase diversity in AI.	
<b>Berkeley AI &amp; AI4ALL Camp</b> , Co-Organizer	2017
Organized inaugural 2-day camp for 24 underprivileged high-school students Free camp with hands-on introduction to CS and AI, aiming to increase diversity in AI.	
<b>Berkeley AI Research Mentoring Program</b> , Co-Organizer	2017-2018
Organized mentoring program for undergraduates who are underrepresented in AI.	
<b>Women in Machine Learning (WiML)</b>	2017
ICML 2017 lunch mentor Co-organized WiML evening event at the Conference on Robot Learning	
<b>UC Berkeley Women in EECS</b> , Outreach Co-coordinator	2016-2017
Organized events for minorities, with advice on pursuing research & grad school Organized day-long STEM exploration workshop for Girl Scouts.	
<b>UC Berkeley Women in EECS</b> , Co-President	2015-2016
<b>Career Panels and Talks at Minorities in STEM events</b>	2015-2018
NASA When I Grow Up Career Exploration Event Graduate Pathways to STEM SWE Parent Education Outreach Program Pioneers in Engineering (PiE) Kick-Off	

## Professional Activities

### Paper Reviewing:

ACM Siggraph 2018  
International Conference on Machine Learning (ICML) 2017, 2018  
International Conference on Learning Representations (ICLR) 2017, 2018  
Conference on Robot Learning (CoRL) 2017  
Communications of the ACM 2016  
Neural Information Processing Systems (NIPS) 2016, 2017  
International Journal of Robotics Research (IJRR) 2016, 2017  
Robotics: Science and Systems (RSS) 2016  
IEEE International Conference on Robotics and Automation (ICRA) 2016, 2017, 2018  
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2016, 2017  
IEEE Robotics and Automation Letters (RA-L) 2016, 2017, 2018

### Workshop Organization:

Workshop on Deep Learning for Action and Interaction, NIPS 2016

## Affiliations

Phi Beta Kappa Honor Society, Member	2014 – present
Tau Beta Pi Engineering Honor Society, Member	2013 – present
IEEE, Member	2013 – present
Eta Kappa Nu Electrical Engineering Honor Society, Member	2013 – present
Society of Women Engineers, Member	2010 – 2014

## Selected Press Coverage

"Robot learns by playing and imagines its own future," by Jonathan Bloom. ABC 7 News. 18 December, 2017.

"Researchers train robots to see into the future," by John Biggs. TechCrunch. 8 December, 2017.

"Building A.I. That Can Build A.I.," by Cade Metz. The New York Times. 5 November 2017.

"The Education of Brett the Robot," by Matt Simon. Wired. 21 September 2017.

"Google Builds a Robotic Hive-Mind Kindergarten," by Will Knight. MIT Technology Review. 3 October 2016

"This Preschool is for Robots," by Jack Clark. Bloomberg Business. 2 September 2015.

"Robot Demonstrates Human-Like Learning Abilities," by Jonathan Bloom. ABC 7 News. 22 May 2015.

"Deep Learning Robots, DRC Practice, and Drone Pilot Competition," by Evan Ackerman. IEEE Spectrum. 22 May 2015.

"New approach trains robots to match human dexterity and speed," by John Markoff. The New York Times. 21 May 2015.