

# LEAH DICKSTEIN

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## EDUCATION

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**University of California, Berkeley | Berkeley, CA** May 2017  
**Major:** Electrical Engineering and Computer Science **GPA:** 3.65

### Scholarships and Awards:

- NSF Center for Science of Information Scholar 2015-2017
- Semiconductor Research Corporation Scholar 2014-2017
- Cal Alumni Association Leadership Award 2013-2014
- UC Berkeley Dept of EECS Outstanding Course Development and Teaching Award 2015-2016

### Relevant Courses:

- Graduate Deep Learning
- Machine Learning, Artificial Intelligence
- Convex Optimization
- Probability and Stochastic Processes
- Graduate Information Theory
- Algorithms and Complexity Theory
- Signals and Systems
- Data Structures

## TECHNICAL SKILLS

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**Proficient:** Python | Java | Javascript | MySQL | Matlab | Git | Ember.js | CSS + HTML | LaTeX

## PAPERS

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**Leah Dickstein**, Vasuki Swamy, Gireeja Ranade and Anant Sahai "Finite Blocklength Coding for Low Latency High Reliability Wireless Communication" Allerton Conference on Communication, Control and Computing (2016)

Kevin Keller, Ethan Robinson, **Leah Dickstein**, Heidi Hahn, Alessandro Cattaneo, and David Mascarenas "Extending human proprioception to cyber-physical systems" *Proc. SPIE 9803, Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems 2016*, 980304 (2016); doi:10.1117/12.2219534

**Leah Dickstein** "Exhaust-ive Learning: Deep Reinforcement Learning for Energy Reduction on Highways" Term Paper for Graduate Deep Neural Networks. (2016)

## PRESENTATIONS

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**Leah Dickstein**, Gireeja Ranade, and Anant Sahai "Delay in Control Systems" *TECHCON (2015) Conference for top 10% of Semiconductor Research Corporation scholars*

## PROFESSIONAL EXPERIENCE

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**Research with Professor Alex Bayen | Berkeley DeepDrive** October 2016 – Present  
**Deep Reinforcement Learning, Control**

- Designed problem formulation, developed working experiments, set up infrastructure for running experiments on AWS
- Applied reinforcement learning to learn how a central controller over a small set of autonomous vehicles can reduce overall highway energy expenditure; investigated new RL techniques (e.g. variance reduction) for multi-agent control
- Planned publication to International Conference on Machine Learning 2017

**Addepar | Files and Reporting** May 2016 – August 2016

### Software Engineering Intern

- 12-week full stack project to design and build a 'Report Generation Center' that will speed up reporting workflows, allow clients to download generated PDFs of their reports, and significantly decrease report generation server failures/bugs
- 13<sup>th</sup> week spent on rotation on Portfolio Analysis team, improving feature for transaction calculations
- Frontend: Coffeescript + Ember.js, Backend: Java, Database: MySQL + JOOQ

**Research with Professor Anant Sahai | BLISS: Berkeley Lab of Information and System Sciences** June 2014 – October 2016  
**Information Theory, Control Theory, Communications**

- Published to conference Allerton 2016: Analyzed diverse modern real-world and theoretic encoding processes in the context of an innovative wireless communication protocol for low-latency high-reliability control systems
- Applied information/control theory to improve control of IoT devices by characterizing the delay-reliability tradeoff
- Analyzed effects of information-redundancy tradeoffs on asymptotic changes in uncertainty in control systems
- Presented findings at TECHCON 2015, selected as top 10% of research funded by Semiconductor Research Corporation

**Head Content + Discussion TA | University of California Berkeley Dept of EECS**

August 2015 – May 2016

**Building Information Devices and Systems; Algorithms and Complexity Theory**

- Determined material covered and pacing of the course, responsible for all homework and discussions released
- Taught class of 40-50 students in linear algebra, circuits/microelectronics, and signal processing/communications
- Mentored team of 10 other TAs via biweekly discussion training
- Constructed, debugged and graded exam + homework problems and discussion worksheets

**Los Alamos Dynamics Research Program**

June 2015 – August 2015

**Robotics, Human-Computer Interaction, Control**

- 9-week paid research program with 2 LANL mentors culminating in publication and conference (SPIE 2016)  
<http://dx.doi.org/10.1117/12.2219534>
- Coded a 3D simulation of a robot in a game environment (using Robot Operating System, Gazebo, and Pygame)
- Designed an innovative vibro-haptic interface for robotic control and conducted experiments on human subjects

**Course Reader | University of California Berkeley Dept of EECS**

August 2014 – May 2015

**Discrete Math and Probability; Building Information Devices and Systems**

- Helped students in office hours
- Graded homework and exams
- Wrote a homework problem on a Chinese Remainder Theorem-based error correcting code
- Guest taught in a discussion section regularly

**INTERESTS**

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Running half marathons | Hiking | Reading fantasy / sci-fi | WestWorld, Game of Thrones | Knitting