

# Deborah Hanus

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## Education

### Harvard University, Cambridge, MA

May 2019 (Expected)

Ph.D. Computer Science, GPA: 3.8/4.0

Advisor: Finale Doshi-Velez & Ryan Adams

Specialization: Reinforcement learning, neural networks, time series methods, text analysis

### Massachusetts Institute of Technology, Cambridge, MA

February 2013

M.Eng. Electrical Engineering and Computer Science, GPA: 5.0/5.0

S.B. Computer Science & Engineering; Brain and Cognitive Sciences, GPA: 4.2/5.0

*Relevant Courses:* Big Data Systems, Adv. Machine Learning, Data Science, Computational Cognitive Science, Adv. Topics in Computer Vision, Computer System Security, Distributed Computer Systems Engineering, Operating Systems.

## Fellowships & Awards

National Science Foundation Graduate Research Fellowship

National Defense Science & Engineering Graduate Fellowship (Declined)

ACM SIGHPC/Intel \$75K Computational & Data Science Fellowship

Fulbright Student Research Fellowship

Harvard Courtlandt S. Gross Memorial Scholarship

KDD-Broadening Participation in Data Mining Scholarship

Facebook Grace Hopper Celebration Scholarship

## Publications

Hanus, D. & Vul, E. (2013) "Quantifying error distributions in crowding." *Journal of Vision*. 13(4):17, 1 – 27.

Vul, E., Hanus, D., & Kanwisher, N. (2009) "Attention as inference: Selection is probabilistic and graded, Conscious access is sampled and discrete." *Journal of Experimental Psychology: General*. 138(4), 546 – 60.

Vul, E., Hanus, D., & Kanwisher, N. (2008) "Delay of selection in the attentional blink." *Vision Research*. 48(18), 1902 – 9.

## Experience

### Harvard University

Cambridge, MA

NSF Graduate Research Fellow

2015 – Present

- Used Python to scrape medical forums to create & store a dataset of ~60K posts. Using time series methods to determine disease trajectory, topic modeling to find similar users, and neural networks for feature extraction.
- Developed models of missing data in batch reinforcement learning to predict effective HIV treatments.
- Developed a model to predict what makes a movie successful (def: Oscars, box office hits), using data from IMDbpy, the-numbers, and box-office-mojo. [oscarpredictor.github.io](https://github.com/dhanus/oscarpredictor)

### Lead Genius

Berkeley, CA

Full Stack Software Engineer

2014 – 2015

- Used Django, Python, HTML, CSS, Javascript, and JQuery to build a user onboarding system and client-facing dashboard used by several hundred clients.
- First full-time hire of the company's team of four responsible for the company's sole product.

### U.S. Department of State

Phnom Penh, Cambodia

Fulbright Scholar

2013 – 2014

- Investigated whether an experience-based education facilitates innovation and entrepreneurship, creating more jobs and decreasing Cambodian underemployment.

## MIT Computer Science & Artificial Intelligence Lab

Graduate Research Assistant

Cambridge, MA

2011 – 2013

M.Eng. Thesis: “Smart Scheduling: Optimizing Tiler’s Process Scheduling via Reinforcement Learning.”

- Implemented Python library of reinforcement learning algorithms to efficiently navigate a maze.
- Integrated reinforcement learning into Tiler’s scheduling using C, optimizing efficiency.

## MIT McGovern Institute for Brain Research

Undergraduate Research Assistant

Cambridge, MA

2007 – 2010

- Collected and managed data of 200+ subjects for 4-10 simultaneous projects.
- Collaboratively developed and coded experiments and corresponding analyses in Python and MATLAB, resulting in 3 peer-reviewed journal articles (1 first author) and 4 posters.

## Service

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### Women in Machine Learning Workshop

Organizer, Fundraising & Sponsorship Chair

Barcelona, Spain

2016

- Worked in a team of 5 students & postdocs spanning 10 time zones, doubling previous year’s fundraising, allowing the workshop 2x the number of attendees, presenters, and travel grants, enabling 200 student presenters and 520 total participants to attend.

### Boston Python Workshop

Teaching Assistant, Project-driven Python

Cambridge, MA

2011 – 2013

- Collaborated in development and instruction of programming exercises aimed at increasing numbers of women who contribute to open source, resulting in 200+ women joining the Boston Python user community and workshops being run in six major cities across the US.

## Presentations

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**Hanus, D., Killian, T., & Doshi-Velez, F.** “Predicting effective HIV treatment in the presence of sparse data” *Poster at CIFAR Deep Learning Summer School, Montreal, Canada August 2016*

**Hanus, D., Killian, T., & Doshi-Velez, F.** “Predicting effective HIV treatment in the presence of sparse data” *Poster at Workshop on Algorithms for Modern Massive Datasets, Berkeley, CA June 2016*

**Hanus, D., Killian, T., & Doshi-Velez, F.** “Predicting effective HIV treatment in the presence of sparse data” *Poster at Machine Learning Summer School, Cadiz, Spain May 2016*

**Hanus, D., Killian, T., & Doshi-Velez, F.** “Predicting effective HIV treatment in the presence of sparse data” *Poster at New England Machine Learning Day, Cambridge, MA May 2016*

**Hanus, D. & Doshi, F.** “Using reinforcement learning to predict effective HIV treatments” *Poster at Women in Machine Learning Workshop, Montreal, CA, December 2015*

**Hanus, D., Vul, E., & Kanwisher, N.** “Attention as Inference: Selection is probabilistic and graded, Conscious access is sampled and discrete.” *Poster at Women in Machine Learning Workshop, Montreal, CA, December 2014*

**Hanus, D. & Vul, E.** “Quantifying Error Distributions in Crowding.” *Talk at Vision Science Society Meeting, Naples, FL, May 2013.*

**Hanus, D. & Wingate D.** “Smart Scheduling: Optimizing Tiler’s Scheduling via Reinforcement Learning.” *Poster at MIT Computer Science & Artificial Intelligence Laboratory Student Workshop. Cambridge, MA. September 2012.*

**Hanus, D., Vul, E., & Kanwisher, N.** “Delay of selective attention during the attentional blink.” *Poster at Vision Sciences Society Meeting, Naples, FL, May 2008.*

**Vul, E., Hanus, D., & Kanwisher, N.** “Selective attention and uncertainty.” *Poster at Vision Science Society Meeting, Naples, FL, May 2008.*

## Skills & Certifications

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**Programming:** Python (numpy, scipy, pandas, tensorflow, etc.), Django, HTML/CSS, Javascript, SQL, C/C++.

**Certifications:** Functional Magnetic Resonance Imaging (fMRI) certified, In-training; National Registry Certified Emergency Medical Technician (EMT-B Inactive); Licensed Private Pilot.

**Languages:** English (Native), Khmer (Working proficiency), Arabic (Basic)