

# Stanford

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## Emma Brunskill

Associate Professor of Computer Science and, by courtesy, of Education

### Bio

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#### ACADEMIC APPOINTMENTS

- Associate Professor, Computer Science
- Associate Professor (By courtesy), Graduate School of Education
- Faculty Affiliate, Institute for Human-Centered Artificial Intelligence (HAI)

#### PROGRAM AFFILIATIONS

- Symbolic Systems Program

### Teaching

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#### COURSES

##### 2022-23

- Advanced Survey of Reinforcement Learning: CS 332 (Aut)
- Causality, Counterfactuals and AI: OSPOXFRD 48 (Spr)
- Counterfactuals: The Science of What Ifs?: CS 31N (Spr)
- Reinforcement Learning: CS 234 (Win)

##### 2021-22

- Causality, Counterfactuals and AI: OSPOXFRD 48 (Spr)
- Reinforcement Learning: CS 234 (Win)

##### 2020-21

- Counterfactuals: The Science of What Ifs?: CS 31N (Spr)
- Reinforcement Learning: CS 234 (Win)

##### 2019-20

- Reinforcement Learning: CS 234 (Win)

#### STANFORD ADVISEES

##### Postdoctoral Faculty Sponsor

Yash Chandak, Yannis Flet-Berliac

##### Master's Program Advisor

Reva Agashe, Kaidi Cao, Chih-Jung Chang, Miles Hutson, Troy Lawrence, Praneeth Medepalli, Maggie Wu

**Doctoral Dissertation Co-Advisor (AC)**

Scott Fleming, Ayush Kanodia, Henry Zhu

**Doctoral (Program)**

Jonathan Lee, Allen Nie

**Publications**

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**PUBLICATIONS**

- **Where's the Reward?: A Review of Reinforcement Learning for Instructional Sequencing** *INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE IN EDUCATION*  
Doroudi, S., Alevan, V., Brunskill, E.  
2019; 29 (4): 568–620
- **Preventing undesirable behavior of intelligent machines.** *Science (New York, N.Y.)*  
Thomas, P. S., Castro da Silva, B., Barto, A. G., Giguere, S., Brun, Y., Brunskill, E.  
2019; 366 (6468): 999–1004
- **Fairer but Not Fair Enough On the Equitability of Knowledge Tracing**  
Doroudi, S., Brunskill, E., Azcona, D., Chung, R.  
ASSOC COMPUTING MACHINERY.2019: 335–39
- **PLOTS: Procedure Learning from Observations using Subtask Structure**  
Mu, T., Goel, K., Brunskill, E., Assoc Comp Machinery  
ASSOC COMPUTING MACHINERY.2019: 1007–15
- **Value Driven Representation for Human-in-the-Loop Reinforcement Learning**  
Keramati, R., Brunskill, E., Assoc Comp Machinery  
ASSOC COMPUTING MACHINERY.2019: 176–80
- **QuizBot: A Dialogue-based Adaptive Learning System for Factual Knowledge**  
Ruan, S., Jiang, L., Xu, J., Tham, B., Qiu, Z., Zhu, Y., Murnane, E. L., Brunskill, E., Landay, J. A., Assoc Comp Machinery  
ASSOC COMPUTING MACHINERY.2019
- **Key Phrase Extraction for Generating Educational Question-Answer Pairs**  
Willis, A., Davis, G., Ruan, S., Manoharan, L., Landay, J., Brunskill, E., Assoc Comp Machinery  
ASSOC COMPUTING MACHINERY.2019
- **BookBuddy: Turning Digital Materials Into Interactive Foreign Language Lessons Through a Voice Chatbot**  
Ruan, S., Willis, A., Xu, Q., Davis, G. M., Jiang, L., Brunskill, E., Landay, J. A., Assoc Comp Machinery  
ASSOC COMPUTING MACHINERY.2019
- **Shared Autonomy for an Interactive AI System**  
Zhou, S., Mu, T., Goel, K., Bernstein, M., Brunskill, E., ACM  
ASSOC COMPUTING MACHINERY.2018: 20–22
- **Representation Balancing MDPs for Off-Policy Policy Evaluation**  
Liu, Y., Gottesman, O., Raghu, A., Komorowski, M., Faisal, A., Doshi-Velez, F., Brunskill, E., Bengio, S., Wallach, H., Larochelle, H., Grauman, K., CesaBianchi, N., Garnett, et al  
NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2018
- **Unifying PAC and Regret: Uniform PAC Bounds for Episodic Reinforcement Learning**  
Dann, C., Lattimore, T., Brunskill, E., Guyon, Luxburg, U. V., Bengio, S., Wallach, H., Fergus, R., Vishwanathan, S., Garnett, R.  
NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2017
- **Regret Minimization in MDPs with Options without Prior Knowledge**

Fruit, R., Pirotta, M., Lazaric, A., Brunskill, E., Guyon, Luxburg, U. V., Bengio, S., Wallach, H., Fergus, R., Vishwanathan, S., Garnett, R.  
NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2017

- **Using Options and Covariance Testing for Long Horizon Off-Policy Policy Evaluation**

Guo, Z., Thomas, P. S., Brunskill, E., Guyon, Luxburg, U. V., Bengio, S., Wallach, H., Fergus, R., Vishwanathan, S., Garnett, R.  
NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2017