Benjamin C. Eysenbach

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Education

Carnegie Mellon University *PhD in Machine Learning* 2018 - present

Relevant Courses: Convex Optimization (10-725), Statistics (36-705)

Massachusetts Institute of Technology *BS in Math* Sept. 2013 - June 2017

Relevant Courses: Algebra (18.06, 18.701), Algorithms (6.046, 6.854, 6.856), Bayesian Modeling (6.882), Computer Graphics (6.837), Computer Vision (6.869), Inference (6.437, 6.438), Machine Learning (6.867), Statistical Learning Theory (6.860)

Relevant Course Projects: Randomized Splay Trees; Visualizing Multi-View Stereo Reconstruction using Oculus Rift; Topic Modeling with LDA and SVI; Stochastic Block Models

Teaching

Exploration in Reinforcement Learning *Co-Lead of Workshop @ ICML* July 2018

Surya Bhupatiraju and I co-led organization of this ICML workshop.

Reinforcement Learning Bootcamp *Instructor* Jan. 2018 - Jun. 2018

Taught an internal RL class to a few teams at Google.

Introduction to Inference (6.008) *TA* Sept. 2016 – Dec. 2016

Math for Computer Science (6.042) *TA* Jan. 2015 – May 2015

Research / Work Experience

Google Brain *Brain Resident in Mountain View, CA* July 2017 - July 2018

Led a couple research projects focused on the challenges of doing reinforcement learning in the real world. Wrote a couple research papers.

Computer Vision Group, CSAIL, MIT *Undergraduate Researcher* Jan. 2015 - May 2017

Worked with Prof. Antonio Torralba and Carl Vondrick to constructed model and dataset to extend visual question and answering to character beliefs. Developed a tool for video segmentation using deep learning.

Uber Advanced Technologies Center *ML Intern in Pittsburgh, PA* May 2016 – Aug 2016

Contributed to the research and development behind Uber's self-driving technologies. (Project details are under NDA.)

Xerox Research Centre *Research Intern in Bangalore, India* Jan 2016 – Jan 2016

Developed algorithm for robust optimization over predictions of machine learning models.

Creative Technology Lab at Adobe *Research Intern in San Francisco, CA* 2015 – Sept 2015

Built automatic video tagging system using deep learning to recognize objects, scenes, and actions.

IIIS, Tsinghua University *Li and Fun Scholar in Beijing, China* June 2014 – Aug 2014

Studied algorithmic game theory and coded simulations to verify proposed solutions.

Senseable Cities Lab, MIT *Undergraduate Researcher* Sept. 2013 – May 2014

Performed image analysis and system integration for an autonomous quadcopter system.

Fluid Interface Group in MIT Media Lab *Undergraduate Researcher* Sept. 2013 – Dec. 2013

Integrated a JS physics engine into LuminAR, the lab's AR platform, to allow physics objects to interact with virtual ones.

Aeturnum *Intern in Bedford, MA* June 2013 – Aug. 2013

Built a recommendation engine for social networking app; constructed a JS tool to automate testing of the iPhone app.

Harvard School of Engineering and Applied Sciences *Intern in Cambridge, MA* May 2013 – June 2013

Created a game using JS to crowdsource study of molecules for use in solar panels.

Awards

Jeremy Gerstle UROP Award May 2017

Given by MIT EECS for "Outstanding Undergraduate Research Project in Artificial Intelligence."

2nd Place Oral Presentation at EECScon May 2015

Tools

Coding: Python (NumPy, SciPy), Bash, MATLAB. Familiar with C, C++
Machine Learning: Tensorflow, Caffe, Torch, scikit-learn, OpenCV
Visualization: Matplotlib, Inkscape, JS
Software: git, vim, Linux, LaTeX

Activities

MIT Unmanned Aerial Vehicle Team: Developed robots tracking and image stitching systems.
MIT Rocket Team: Designed sensor system for cold-flow and hot-fire tests. Wrote software to display real-time data.
Long Distance/Trail Running:

Publications

Abhishek Gupta, **Eysenbach, Benjamin**, Chelsea Finn, and Sergey Levine. Unsupervised meta-learning for reinforcement learning. *arXiv:1806.04640*, 2018.

Eysenbach, Benjamin, Abhishek Gupta, Julian Ibarz, and Sergey Levine. Diversity is all you need: Learning skills without a reward function. *arXiv:1802.06070*, 2018a.

John D Co-Reyes, YuXuan Liu, Abhishek Gupta, **Eysenbach, Benjamin**, Pieter Abbeel, and Sergey Levine. Self-consistent trajectory autoencoder: Hierarchical reinforcement learning with trajectory embeddings. *ICML*, 2018.

Eysenbach, Benjamin, Shixiang Gu, Julian Ibarz, and Sergey Levine. Leave no trace: Learning to reset for safe and autonomous reinforcement learning. *ICLR*, 2018b.

Bum Chul Kwon, **Eysenbach, Ben**, Janu Verma, Kenney Ng, Christopher De Filippi, Walter F Stewart, and Adam Perer. Clustervision: Visual supervision of unsupervised clustering. *IEEE transactions on visualization and computer graphics*, 24(1):142–151, 2018.

Eysenbach, Benjamin, Carl Vondrick, and Antonio Torralba. Who is mistaken? *arXiv:1612.01175*, 2016.