Jerry Liu

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LinkedIn: https://bit.ly/33HTvsw | Google Scholar: https://bit.ly/2G29r0o | Quora: https://bit.ly/2Iogyzx

Work Experience

AI Research Scientist | Uber ATG | 08/2018 - Present
- Led and mentored multiple projects on multi-agent simulation, prediction and planning.
- Led/mentored research on deep-learning based LiDAR/image/video-compression algorithms. Relevant areas of research: information theory, generative models, attention, 3D geometry, stereo matching, optical flow.

Machine Learning Engineer | Quora Inc. | 08/2017 - 08/2018
- Researched and productionized GBDT's for new users, contributing to +5% increase in new user active usage.
- Developed features obtained through various collaborative filtering approaches including SVD and via weighted-ALS. Decreased CPU cost and increased Quora Digest/i18n active usage.
- Prototyped related question generation, including deep NLP models based on seq2seq attention RNN's and VAEs.

Internships
- *Two Sigma Investments (2016),* Platform team | *Quora Inc (2015),* Infra team | *Apple Inc (2014),* iOS Mail team.

Selected Publications / Projects

Deep Structured Reactive Planning (in submission, 2020):
- *Jerry Liu*, Wenyuan Zeng, Raquel Urtasun, Ersin Yumer. Paper available soon.

MuSCLE: Multi Sweep Compression of LiDAR using Deep Entropy Models (NeurIPS 2020):
- S. Biswas, *Jerry Liu,* K. Wong, S. Wang, R. Urtasun. Paper available soon.
- We present a comprehensive deep entropy framework for compression of temporal LiDAR point clouds.

Conditional Entropy Coding for Efficient Video Compression (ECCV 2020):
- *Jerry Liu*, S. Wang, W.C. Ma, M. Shah, R. Hu, P. Dhawan, R. Urtasun. Paper: https://arxiv.org/abs/2008.09180
- We show that using deep entropy models for video compression are surprisingly effective/fast.

OctSqueeze: Octree-Structured Entropy Model for LiDAR Compression (CVPR 2020, Oral):
- L. Huang, S. Wang, K. Wong, *Jerry Liu,* R. Urtasun. Paper: https://arxiv.org/abs/2005.07178
- We present novel tree-structured neural nets for state-of-the-art compression of LiDAR point clouds.

Deep Stereo Image Compression (ICCV 2019, Oral):
- *Jerry Liu,* Shenlong Wang, Raquel Urtasun. Paper: https://arxiv.org/abs/1908.03631
- Developed a novel deep image compression architecture to compress a stereo image pair.

Interactive 3D Modeling with a Generative Adversarial Network (3DV 2017):
- *Jerry Liu*, Fisher Yu, Thomas Funkhouser. Paper: https://arxiv.org/abs/1706.05170.
- Novel GAN framework allowing users to create/edit voxel-based 3D models by exploring the manifold of 3D-GANs.

Personal AI Projects
- *Microsoft LightGBM PR (2018)*: Force a split at the top of every decision tree during training. Accepted as major pull request on Github. See: https://github.com/Microsoft/LightGBM/pull/1310.
- *Conditional Image Generation Using DCGANs (2016)*: Paper link: https://bit.ly/2FVuOR2.
- *Star Wars Boids (2017):* See https://jerryjliu.github.io/star_wars_boids/ for demo of adversarial Boids!

Education

B.S.E. Computer Science | Princeton University | Class of 2017
- Overall GPA: 3.97, Departmental GPA: 4.0. Summa Cum Laude, member of Phi Beta Kappa, Tau Beta Pi, Sigma Xi.
- 2015-2016 Co-President, Princeton Entrepreneurship Club. 2015 Co-Director, HackPrinceton.
- **Academic Highlights:**
- *2017 Outstanding Computer Science Thesis Prize* - awarded to top 8 senior theses in CS department.
- *2014 Shapiro Prize for Academic Excellence* - awarded to top 2% of freshman class.
- *2017-2018 CS Lab TA / Grader* - graded both Artificial Intelligence and Deep Learning courses.

Other Notable Highlights/Skills

- **Quora Most Viewed Writer on AI/ML topics:** over 150k views, featured on LinkedIn and Quora Digest. Focus topics include: GANs, reinforcement learning, decision trees. See: https://bit.ly/2Iogyzx.
- Deep Learning Frameworks: PyTorch/Torch, and a bit of Keras and Tensorflow.
- Fluent in Python, Java, C++, Javascript, Objective-C (have built multiple iOS apps/websites).