Qiyang (Colin) Li

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Research Interests

Reinforcement learning, representation learning, curriculum learning, and automated reasoning.

Education

2020.08 – **Ph.D. in Computer Science**, *University of California, Berkeley*, Advisor: Sergey Levine.

2015.09 – 2020.05 **B.A.Sc. in Engineering Science (Major in Robotics Engineering)**, *University of Toronto*, B.A.Sc. Thesis Advisor – Roger Grosse.

Publications

2022 **Conference Paper**, **Qiyang Li**, Ajay Jain, Pieter Abbeel. AdaCat: Adaptive Categorical Discretization for Autoregressive Models. To appear in *The Conference on Uncertainty in Artificial Intelligence (UAI)*, 2022.

2021 **Conference Paper**, Michael Janner, **Qiyang Li**, Sergey Levine. Offline Reinforcement Learning as One Big Sequence Modeling Problem. In *Advances in Neural Information Processing Systems (NeurIPS)*, 2019.

2019 **Conference Paper**, **Qiyang Li***, Saminul Haque*, Cem Anil, James R Lucas, Roger B Grosse, and Joern-Henrik Jacobsen. Preventing gradient attenuation in lipschitz constrained convolutional networks. In *Advances in Neural Information Processing Systems (NeurIPS)*, 2019.

2019 **Conference Paper**, Sicong Huang, **Qiyang Li**, Cem Anil, Xuchan Bao, Sageev Oore, and Roger B. Grosse. Timbretron: A Wavenet(CycleGAN(CQT(audio))) Pipeline for Musical Timbre Transfer. In *International Conference on Learning Representations (ICLR)*, 2019.

2019 **Conference Paper**, Keenan Burnett, Andreas Schimpe, Sepehr Samavi, Mona Gridseth, Chengzhi Winston Liu, **Qiyang Li**, Zachary Kroeze, and Angela P Schoellig. Building a winning self-driving car in six months. In *International Conference on Robotics and Automation (ICRA)*, 2019.

2017 **Conference Paper**, **Qiyang Li**, Jingxing Qian, Zining Zhu, Xuchan Bao, Mohamed K Helwa, and Angela P Schoellig. Deep neural networks for improved, impromptu trajectory tracking of quadrotors. In *International Conference on Robotics and Automation (ICRA)*, 2017.

2017 **Pre-print**, **Qiyang Li**, Xintong Du, Yizhou Huang, Quinlan Sykora, and Angela P. Schoellig. Learning of coordination policies for robotic swarms. 2017.

Working Experience

2018.05 – 2019.09 **Deep Learning Intern**, *NVIDIA*, Santa Clara/Toronto.

- Software development for ISAAC SDK, a robotic framework for industrial applications (C++, Python)
- Contributed to the machine learning infrastructure of ISAAC SDK that allows users to deploy deep learning models conveniently.
- Worked on physics-based animation using deep reinforcement learning techniques that generated realistically looking human motions in simulation.

Organizations

2017.09 – 2020.05 **Autonomy Sub-Team Member → Road and Lane Detection Team Lead**, *University of Toronto's Self-driving Car Team (aUToronto).*

Achieved real-time lane detection with CPU-only constraint using a light-weight convolutional neural network. The team won the first two years of SAE AutoDrive Challenge (Python, C++, Robot Operating System). My contribution on light-weight lane detection design is part of a system paper that got published in International Conference on Robotics and Automation (ICRA) 2019. Paper: `arxiv.org/pdf/1811.01273.pdf`

2017.01 – 2019.04 **VP Academics → President (Co-founder)**, *University of Toronto Machine Intelligence Student Team (UTMIST).*
Built a platform that connects undergraduate students to machine learning communities through educational workshops and talk series. Website: `utmist.github.io`.

2017.01 – 2018.12 **Team Member → Assistant Coach**, *University of Toronto ACM International Collegiate Programming Contest (ICPC) Team*, Toronto.
Competed in a team of three and achieved top 10 (out of 139 teams) in ACM-ICPC East Central North American Regional Round.

Awards

- National Olympiad in Informatics, China: Silver Medal (2012)
- Canadian Computing Competition Final Stage: 2 Silver Medals and 1 Gold Medal (2013 – 2015)
- First-Year Summer Research Fellowship Program, Faculty of Applied Science & Engineering, University of Toronto (2016)
- St. George Society Of Toronto Endowment Fund (2016)
- Kenneth Carless Smith Engineering Science Research Fellowship (2017)
- Satinder Kaur Dhillon Memorial Scholarship (2017)
- Daisy Intelligence Scholarships In Engineering Science (2018)
- Andrew Alexander Kinghorn Scholarship (2018)
- Berkeley Fellowship (2020)