

Ali Kuwajerwala

M.Sc. Candidate, University of Montréal & Mila

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Actively seeking internships in machine learning and/or robotics for summer 2022.

EXPERIENCE

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- Machine Learning/Software Engineer, Liquid Analytics (Startup)** Summer 2021
Perform AI Application, Core Algorithms Team (Remote, US)
- Developed highly scalable algorithms in **Julia** to quickly process logistics data for large distribution companies.
 - Set up queuing infrastructure using **AMQP** and **RabbitMQ** to handle upto 300,000 requests each second.
 - Deployed **AWS** services to efficiently host our software in the cloud, simplifying the CI/CD pipeline.
- Robotics Researcher, RVL Lab** Sep. 2020 – Apr. 2021
Robot Vision and Learning Lab, University of Toronto Toronto, ON
- Developed novel data augmentation techniques for improved autonomous driving performance in mobile robots.
 - Responsibilities: data collection, performing simulation experiments, designing/debugging the ANN architectures.
 - Performed real robot experiments with a Husky robot; including sensor setup and **ROS** Node configuration.
 - Joint first author for the paper: Sharma D, **Kuwajerwala A**, Shkurti F. *Augmenting Imitation Experience via Equivariant Representations*. arxiv.org/abs/2110.07668 (Paper currently under review for ICRA 2022)
- Software Developer, EPSON** Jul. 2018 – Apr. 2019
Machine Vision Team, Robotics Department, EPSON Canada Markham, ON
- Developed 3D object detection and pose estimation technologies for commercial bin picking robots.
 - Automated evaluation tasks using **Python** and **Bash**, increasing (upto 5x) the amount of tasks run each day.
 - Evaluated and debugged algorithms, analyzed research results to diagnose and fix detection/estimation issues.
- Teaching Assistant, University of Toronto** Sep. 2017 – Dec. 2020
Department of Computer Science, University of Toronto Toronto, ON
- Modified and updated existing assignments for remote delivery (using ssh and VNC) during the pandemic.
 - Courses: Mobile Robotics (CSC477), Data Structures and Analysis (CSC263), Theory of Computation (CSC236).
 - Prepared and taught lectures, designed & graded assignments, designed marking schemes & graded tests.

PROJECTS

All code available on Github – see my website.

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- Backwards Reachability: A Tutorial** | *Matlab, Reachability Analysis* Dec. 2020
- Tutorial covering the current available tools and theory fundamentals for reachability projects at UofT's RVL Lab.
- Feature Visualization for ANNs (Workshop)** | *Jupyter Notebook, Python, Tensorflow* Dec. 2019
- Workshop presented at UofT ML Reading Group, rated 4.4/5 stars in feedback survey, with 60% of 31 respondents requesting a follow-up workshop.
- NeoCirkuits (Android App)** | *Java, Android Studio* Summer 2018
- Developed a math (graph theory) based puzzle game for Android with 60+ levels included and a level creator tool.
 - Currently has 500+ downloads on the Play Store and is rated 4.9/5 stars. All code available on Github.

EDUCATION

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- University of Montréal & Mila**
- M.Sc, Computer Science (Robotics and Artificial Intelligence)* Sep. 2021 – May 2023
- Supervisor:** Prof. Liam Paull, director of the Montreal Robotics and Embodied AI Lab.
- University of Toronto**
- H.B.Sc, Computer Science & Math CGPA: 3.63* Sep. 2016 – May 2020
- Award:** Received the NSERC Undergraduate Student Research Award, a value of \$5600. (2020)
 - Extracurricular:** Co-Founder & Head of Operations of the Robotics Club. (2019-2020)

TECHNICAL SKILLS

Languages: Python, Julia, C/C++, Java, SQL
Developer Tools: Git, ROS, Amazon Web Services, OpenAI Gym, Android Studio, CUDA, ssh, VNC
Libraries: PyTorch, Tensorflow, OpenCV, pandas, NumPy, scipy, Matplotlib, Plotly