

# Ali Kuwajerwala

## Researcher and Engineer, AI and Robotics

[alihkw.com](http://alihkw.com) | [alihusein.kuwajerwala@umontreal.ca](mailto:alihusein.kuwajerwala@umontreal.ca) | [linkedin.com/in/alihkw](https://linkedin.com/in/alihkw) | [github.com/alik-git](https://github.com/alik-git)

**AI and robotics researcher and engineer with a strong background in deep learning, robotics, and multimodal foundation models. Seeking technical research and engineering roles.**

### SELECTED PUBLICATIONS (MASTER'S RESEARCH)

- ICRA 2024** Kuwajerwala, A., Gu, Q., Morin, S., Jatavallabhula, K. M., Sen, B., Agarwal, A., Rivera, C., Paul, W., Ellis, K., Chellappa, R., Gan, C., Melo, C. M., Tenenbaum, J. B., Torralba, A., Shkurti, F., Paull, L., *ConceptGraphs: Open-Vocabulary 3D Scene Graphs for Perception and Planning*. URL: <https://concept-graphs.github.io>.
- RSS 2023** Jatavallabhula, K. M., Kuwajerwala, A., Gu, Q., Omama, M., Chen, T., Li, S., Iyer, G., Saryazdi, S., Keetha, N., Tewari, A., Tenenbaum, J. B., Melo, C. M., Krishna, M., Paull, L., Shkurti, F., Torralba, A., *ConceptFusion: Open-set Multimodal 3D Mapping*. URL: <https://concept-fusion.github.io>.

### EXPERIENCE

- Member of Technical Staff, K-Scale Labs (Startup)** Nov. 2024 - Sep. 2025  
*Founding Team, Deep Learning (Palo Alto, CA)*
- Led sim2real locomotion on IsaacLab<sup>🔗</sup>, implementing rewards, actuator models, curriculum, domain randomization, logging and evaluation pipelines.
  - Created K-Scale MuJoCo Viewer (KMOV)<sup>🔗</sup>, an interactive simulation visualizer. Built with **Qt** and **Python**, enables rapid debugging with push forces, real-time plotting, logging, and video saving.
  - Created K-Infer Evals<sup>🔗</sup>, an automation system for evaluating trained locomotion policies. Runs policies in a variety of scenarios and logs results to a Notion database for comparison and inspection.
  - Core contributor to the CAD → URDF (pipeline<sup>🔗</sup>) with inertia calibration & consistency checks to keep mechanical design, simulation, and firmware in sync.
- Applied Scientist Intern, Amazon** Summer 2022  
*Alexa AI Team, Amazon Devices (Toronto, ON)*
- Improved the accuracy of the conversational **NL2SQL** system by **1.5%** on the **Spider** NL2SQL dataset.
  - Prototyped alternative model architectures to overcome the 512 token length limitation in existing models.
- Machine Learning 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.
- Computer Vision Engineer, 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.

### EDUCATION

- Mila & University of Montréal**  
*M.Sc, Computer Science (Robotics and Artificial Intelligence) Sep. 2021 – Aug. 2024*
- Supervisor:** Prof. Liam Paull, director of the Montreal Robotics and Embodied AI Lab, Core Mila Member, CIFAR AI Chair.
- 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)
  - Teaching Assistant:** Mobile Robotics (CSC477), Data Structures (CSC263), Theory of Computation (CSC236).

### TECHNICAL SKILLS

**Languages:** Python, Rust, C/C++, Julia, SQL  
**Libraries / Tools:** PyTorch, JAX, Tensorflow, ROS