# Alihusein Kuwajerwala

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**Seeking roles focused on analyzing, designing, and optimizing computer systems to improve data workflows and ensure seamless integration in robotics and AI environments.**

## Selected Publications

**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*** .

**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***.

**ICRA 2022** Sharma, D., **Kuwajerwala, A.**, Shkurti, F., ***Augmenting Imitation Experience via Equivariant Representations***.

## Experience

**Robotics Researcher, REAL Lab** 2023
*Montreal Robotics and Embodied AI Lab, University of Montreal* *Montreal, QC*

- Analyzed and optimized system architecture for open-vocabulary 3D scene graph construction, improving data processing workflows to efficiently handle large-scale multi-view image data and semantic associations.
- Integrated vision and language model outputs into a structured 3D representation, designing data flows and performing system configuration to support seamless inter-object relationships and query-based information retrieval.

**Internship, Amazon** 2022
*Alexa AI Team, Amazon Devices* *(Toronto, ON)*

- Enhanced data flow and system scalability by analyzing existing constraints and proposing system improvements for natural language processing tasks.
- Prototyped alternative system architectures to overcome the 512 token length limitation in existing systems.

**Machine Learning Engineer, Liquid Analytics (Startup)** 2021
*Perform AI Application Team* *(Remote)*

- Analyzed and optimized computer systems for processing logistics data, ensuring system scalability and high performance
- Designed and optimized queuing and data processing systems to handle high-volume requests, ensuring reliability and supporting scalability.

**Internship, EPSON** Jul. 2018 – Apr. 2019
*Machine Vision Team, Robotics Department, EPSON Canada* *Markham, ON*

- Optimized data handling and evaluation systems for robotic applications, improving processing efficiency to support commercial robotics operations
- Enhanced evaluation systems to support increased throughput and data consistency, increasing (upto 5x) the amount of tasks run each day.

## Education

**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).