

# Qiao Gu

PH.D. STUDENT · UNIVERSITY OF TORONTO

✉ q.gu@mail.utoronto.ca | 🏷 georgegu1997.github.io | 🐦 @qiaogu1997

## Education

---

### University of Toronto

PH.D. IN COMPUTER SCIENCE

- GPA: 4.0 / 4.0
- Advisor: Prof. Florian Shkurti
- Research Interest: 3D Computer Vision, Robot Learning, Generative Models

Toronto ON, Canada

09/2021 - present

### Carnegie Mellon University

M.S. IN ROBOTICS

- GPA: 4.24 / 4.33
- Advisor: Prof. David Held and Prof. Martial Hebert

Pittsburgh PA, U.S.A.

08/2019 - 08/2021

### Hong Kong University of Science and Technology

B.ENG. IN COMPUTER SCIENCE AND ELECTRONIC ENGINEERING

- GPA: 4.15 / 4.30
- Advisors: Prof. Chi-Keung Tang and Prof. Yu-Wing Tai

Hong Kong S.A.R.

09/2015 - 06/2019

## Professional Experience

---

June 2025 | **Research Scientist Intern | Meta Reality Labs, REDMOND WA, U.S.A.**

Dec 2025 | With Julian Straub

Video Generation with 3D Memory | Egocentric World Models

Aug 2023 | **Research Scientist Intern | Meta Reality Labs, REDMOND WA, U.S.A.**

Feb 2024 | With Chris Sweeney and Zhaoyang Lv

Open-world Segmentation | 3D Gaussian Splatting | Egocentric Perception

Dec 2018 | **Research and Development Intern | Tencent YouTu Lab, SHENZHEN GUANGDONG, China**

Jan 2019 | With Yu-Wing Tai

Computer Vision | Face Alignment

## Publications

---

\* Indicates equal contribution.

### SAFE: Scalable Failure Estimation for Vision-Language-Action Models

NeurIPS 2025

**Qiao Gu, Yuanliang Ju, Shengxiang Sun, Igor Gilitschenski, Haruki Nishimura, Masha Itkina, Florian Shkurti**

[Paper](#) [Website](#) [Code](#)

### SICNav-Diffusion: Safe and Interactive Crowd Navigation with Diffusion Trajectory Predictions

RA-L 2025

Sepehr Samavi, Anthony Lem, Fumiaki Sato, Sirui Chen, **Qiao Gu, Keijiro Yano, Angela P Schoellig, Florian Shkurti**

[Paper](#)

### EgoLifter: Open-world 3D Segmentation for Egocentric Perception

ECCV 2024

**Qiao Gu, Zhaoyang Lv, Duncan Frost, Simon Green, Julian Straub, Chris Sweeney**

[Paper](#) [Website](#) [Code](#)

**Safe Diffusion Model Predictive Control for Interactive Robotic Crowd Navigation** CoRL 2024 Workshop  
Sepehr Samavi, Anthony Lem, Fumiaki Sato, Sirui Chen, **Qiao Gu**, Keijiro Yano, Angela P Schoellig, Florian Shkurti  
[Paper](#)

**Aria Everyday Activities Dataset** arXiv 2024

Zhaoyang Lv, Nicholas Charron, Pierre Moulon, Alexander Gamino, Cheng Peng, Chris Sweeney, Edward Miller, Huixuan Tang, Jeff Meissner, Jing Dong, Kiran Somasundaram, Luis Pesqueira, Mark Schwesinger, Omkar Parkhi, **Qiao Gu**, Renzo De Nardi, Shangyi Cheng, Steve Saarinen, Vijay Baiyya, Yuyang Zou, Richard Newcombe, Jakob Julian Engel, Xiaqing Pan, Carl Ren

[Paper](#) [Website](#)

**ConceptGraphs: Open-vocabulary 3D Scenegraphs for Perception and Planning** ICRA 2024

**Qiao Gu\***, Alihusein Kuwajerwala\*, Sacha Morin\*, Krishna Murthy Jatavallabhula\*, Bipasha Sen, Aditya Agarwal, Corban Rivera, William Paul, Kirsty Ellis, Rama Chellappa, Chuang Gan, Celso Miguel de Melo, Joshua B. Tenenbaum, Antonio Torralba, Florian Shkurti, Liam Paull

[Paper](#) [Website](#) [Code](#)

**ConceptFusion: Open-set Multimodal 3D Mapping** RSS 2023

Krishna Murthy Jatavallabhula, Alihusein Kuwajerwala, **Qiao Gu\***, Mohd Omama\*, Tao Chen, Shuang Li, Ganesh Iyer, Soroush Saryazdi, Nikhil Keetha, Ayush Tewari, Joshua B. Tenenbaum, Celso Miguel de Melo, Madhava Krishna, Liam Paull, Florian Shkurti, Antonio Torralba

[Paper](#) [Website](#) [Code](#)

**Preserving Linear Separability in Continual Learning by Backward Feature Projection** CVPR 2023

**Qiao Gu**, Dongsub Shim, Florian Shkurti

[Paper](#)

**OSSID: Online Self-supervised Instance Detection by (and for) Pose Estimation** RA-L & ICRA 2022

**Qiao Gu**, Brian Okorn, David Held

[Paper](#) [Website](#) [Code](#)

**ZePHyR: Zero-shot Pose Hypothesis Rating** ICRA 2021

Brian Okorn\*, **Qiao Gu\***, Martial Hebert, David Held

[Paper](#) [Website](#) [Code](#)

**Deep Video Matting via Spatio-Temporal Alignment and Aggregation** CVPR 2021

Yanan Sun, Guanzhi Wang\*, **Qiao Gu\***, Chi-Keung Tang, Yu-Wing Tai

[Paper](#)

**iQUANT: Interactive Quantitative Investment Using Sparse Regression Factors** EuroVis 2021

Xuanwu Yue, **Qiao Gu**, Deyun Wang, Huamin Qu, Yong Wang

[Paper](#)

**LADN: Local Adversarial Disentangling Network for Facial Makeup and De-Makeup** ICCV 2019

**Qiao Gu\***, Guanzhi Wang\*, Mang Tik Chiu, Yu-Wing Tai, Chi-Keung Tang

[Paper](#) [Website](#) [Code](#)

**Characterizing Fluid Response and Sepsis Progression in Emergency Department Patients** EMBC 2019

**Qiao Gu**, Varesh Prasad, Thomas Heldt

[Paper](#)

**PreserVis, a Visual Analytic System for Traffic and Pollution Patterns** VAST 2017

**Qiao Gu**, Hang Yin, Lian Chen, Haotian Li, Chengzhong Liu, Xuanwu Yue, Huamin Qu

[Paper](#)

## Awards, Scholarships, & Grants

---

2025	<b>Mary H. Beatty Fellowship</b>	CAD 10,000
2025	<b>University Nomination for Google PhD Fellowship</b>	
2025	<b>Finalist of Qualcomm Innovation Fellowship</b>	
2025	<b>Kwok Sau Po Scholarship</b>	CAD 1,750
2025	<b>The Fahiem Bacchus Memorial Graduate Student Scholarship</b>	CAD 2,000
2024	<b>NeurIPS 2024 Top Reviewer</b>	
2024	<b>Mary H. Beatty Fellowship</b>	CAD 10,000
2024	<b>Ray Reiter Graduate Award</b>	CAD 1,000
2023	<b>Acres Productive Technologies Inc./Joseph Yonan Memorial Fellowship</b>	CAD 2,000
2022	<b>Ontario Graduate Scholarships</b>	CAD 15,000
2019	<b>HKUST Academic Achievement Medal (Top 1%)</b>	
2017-2019	<b>HKSAR Government Scholarships</b>	HKD 160,000
2015-2019	<b>Dean's List</b>	
2018	<b>Mr. Armin and Mrs. Lillian Kitchell Undergraduate Research Award</b>	
2017	<b>High Fashion Charitable Foundation Exchange Scholarships</b>	HKD 50,000
2017	<b>HKSAR Government Scholarship Fund - Reaching Out Award</b>	HKD 10,000
2017	<b>HKSAR Government Scholarship Fund - Talent Development Scholarship</b>	HKD 10,000
2016	<b>Simatelex Charitable Foundation Scholarship</b>	HKD 20,000
2016	<b>University's Scholarship Scheme for Continuing Undergraduate Students</b>	HKD 20,000
2015	<b>University Admission Scholarship</b>	HKD 40,000

## Invited Talks

---

- 03/2024. *ConceptGraphs: Open-Vocabulary 3D Scene Graphs for Perception and Planning*. Boston Dynamic AI institute
- 02/2024. *Open-World 3d Segmentation with Project Aria*. Meta Reality Labs
- 10/2023. *ConceptGraphs: Open-Vocabulary 3D Scene Graphs for Perception and Planning*. Meta Reality Labs

## Teaching Experience

---

- Fall 2022 **CSC384: Intro to Artificial Intelligence** Teaching Assistant
- Winter 2022 **CSC384: Intro to Artificial Intelligence** Teaching Assistant
- Fall 2021 **CSC110: Foundations of Computer Science I** Teaching Assistant

## Mentorship

---

- 2024-present **James Ross** Master student, University of Toronto
- 2024-present **Yuanliang Ju** PhD student, University of Toronto
- 2024-present **Owen Sun** Undergraduate student, University of Toronto
- 2022-2025 **Anthony Lem** Master student, University of Toronto
- 2023-2024 **Sirui Chen** Undergraduate student, University of Toronto
- 2023 **Edward Li** Undergraduate student, University of Toronto
- 2023 **Spencer Li** Undergraduate student, University of Toronto

## Outreach & Professional Development

---

### SERVICE AND OUTREACH

2024-2025 **UofT RI Reading Group** Organizer  
2022 **Toronto AI in Robotics Seminar** Organizer

#### REVIEWER SERVICE

TRO, TPAMI, IJRR, TMLR, RA-L, NeurIPS, CVPR, ICLR, ICCV, ICRA, IROS, ECCV, ICML, WACV

#### PROFESSIONAL MEMBERSHIPS

Student member, IEEE