Haoping Xu

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Education

Ph.D. in Computer Science, University of Toronto **Sept 2019 - Present**

- Supervisor: Alán Aspuru-Guzik; Collaborator: Animesh Garg, Florian Shkurti
- Researching perception and robot planning for transparent objects and lab automation
- Have 7 publications in top robotics conferences and chemistry journals

H.B.Sc. in Computer Science & Chemistry, University of Toronto **Sept 2014 - June 2019**

- Focus in Artificial Intelligence (Specialist) and Computer Vision (Specialist)
- Focus in Biological Chemistry (Specialist)
- CGPA 3.99/4.0, Dean's List Scholar for 5 years

Experience

Graduate Researcher, Vector Institute **Sept 2019 - Present**

- Papers accepted to multiple top robotics conferences. Research focus: perception and robot planning for transparent objects

Team Lead, RA^2D Lab, Acceleration Consortium **Sept 2020 - Present**

- RA^2D: Robotics-assisted Accelerated Discovery lab
- Joint Lab led by Alán Aspuru-Guzik**,** Animesh Garg, Florian Shkurti
- Leading automated robot chemistry lab, focusing on 3D perception and TAMP

Teaching Assistant, University of Toronto **Sept 2019 - Present**

- CSC420 Introduction to Image Understanding (3 terms)
- CSC412 Probabilistic Machine Learning (4 terms)
- CSC317 Computer Graphics
- CSC311 Introduction to Machine Learning

Student Researcher, Vector Institute **Sept 2018 - Sept 2019**

- Supervised by Roger Grosse, worked on hyperparameter optimization by implicit function theorem and conjugated gradient

Full Stack Web Dev Intern, IBM Canada **May 2017 - Sept 2019**

- Develop internal HR reporting website for hiring and human resources management across all IBM global divisions.
- Lead the HR reporting website architecture migration from legacy system to Vue-based web application.

Publications

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* below indicates equal contribution

2020

- Eppel, Sagi*, **Haoping Xu***, Mor Bismuth, and Alan Aspuru-Guzik. “Computer Vision for Recognition of Materials and Vessels in Chemistry Lab Settings and the Vector-LabPics Data Set.” ACS Central Science (**Cover Paper**)

2021

- **Haoping Xu***, Yi Ru Wang*, Sagi Eppel, Alàn Aspuru-Guzik, Florian Shkurti, Animesh Garg.”Seeing Glass: Joint Point Cloud and Depth Completion for Transparent Objects” Accepted at Conference on Robot Learning (CoRL) 2021 (**Oral**)

- Eppel, Sagi, **Haoping Xu**, Yi Ru Wang, and Alan Aspuru-Guzik. “Predicting 3D Shapes, Masks, and Properties of Materials inside Transparent Containers, Using the TransProteus CGI Dataset.” Digital Discovery
- Eppel, Sagi, **Haoping Xu**, and Alan Aspuru-Guzik. “Computer Vision for Liquid Samples in Hospitals and Medical Labs Using Hierarchical Image Segmentation and Relations Prediction.” arXiv

2022

- Yi Ru Wang*, Yuchi Zhao*, **Haoping Xu***, Saggi Eppel, Alan Aspuru-Guzik, Florian Shkurti, Animesh Garg. “MVTrans: Multi-View Perception of Transparent Objects” Accepted at ICRA 2023
- Luca Thiede, Santiago Miret, Krzysztof Sadowski, **Haoping Xu**, Mariano Phielipp, Alan Aspuru-Guzik. “Conformer Search Using SE3-Transformers and Imitation Learning” Accepted at NeurIPS 2022 Workshop AI4Mat

2023

- Naruki Yoshikawa*, Andrew Zou Li*, Kourosh Darvish*, Yuchi Zhao*, **Haoping Xu***, Artur Kuramshin, Alán Aspuru-Guzik, Animesh Garg, Florian Shkurti. “Chemistry Lab Automation via Constrained Task and Motion Planning” arXiv

Grants & Awards

- **Vector Research Grant:** 6000 CAD annually **2019 - 2023**
- **The Provost's Scholar Award:** 200 CAD **2019**
- **The Drew Thompson Scholarships:** 400 CAD **2018**
- **The David Mclaren Scholarship In Chemistry:** 2000 CAD **2017**
- **Sarsh Cusick Gollop And William George Gollop Memorial Undergraduate Scholarship:** 700 CAD **2017**
- **Dorothy Whiting Scholarship In Chemistry:** 440 CAD **2017**
- **The Chancellor's Scholarships:** 500 CAD **2016**
- **U Of T Scholar - International In-Crs:** 1500 CAD **2015**
- **E-Fund Scholarship:** 5000 CAD **2014**