

# Mengfei Liu

<https://mengfeill.github.io/>  
<https://github.com/mengf821>  
[mengfei.liu@mail.utoronto.ca](mailto:mengfei.liu@mail.utoronto.ca)

---

## EDUCATION

**UNIVERSITY OF TORONTO** | SUPERVISOR: EITAN GRINSPUN  
PH.D. STUDENT IN COMPUTER SCIENCE  
Expected Nov. 2026 | Toronto, ON

**UNIVERSITY OF WATERLOO**  
BACHELOR OF SOFTWARE ENGINEERING  
Sept. 2016 - Apr. 2021 | Waterloo, ON

## SKILLS

### PROGRAMMING

Experienced:

Python • NumPy • PyTorch • Bash • C/C++ • Mathematica • SQL • Java • Git

## PUBLICATIONS

**Lifting the Winding Number: Precise Representation of Complex Cuts in Subspace Physics Simulations**  
Yue Chang, **Mengfei Liu**, Zhecheng Wang, Peter Yichen Chen, Eitan Grinspun  
SIGGRAPH 2025

**Validation of an Improved Vision-Based Web Page Parsing Pipeline**  
Michael Cormier, Robin Cohen, Richard Mann, Karyn Moffatt, Daniel Vogel, **Mengfei Liu**, Shangshang Zheng  
ACM Transactions on the Web, Volume 18, Issue 3, 2024

## RESEARCH EXPERIENCE

**UNIVERSITY OF WATERLOO** | RESEARCH ASSISTANT  
Sept. 2020 - Present | Waterloo, ON

- Conducted fluid simulation research under Prof. Christopher Batty, focusing on solving the Navier-Stokes equation with second-order accuracy on ungraded quadtree/octree grids
- Reimplemented second-order accurate methods for solving the Euler equations on ungraded quadtree/octree structures

**UNIVERSITY OF WATERLOO** | RESEARCH ASSISTANT  
Sept. 2017 - Dec. 2017, May 2018 - Aug. 2018 | Waterloo, ON

- Worked under Prof. Jimmy Lin on end-to-end question answering, contributing to retrieval and ranking components
- Developed initial Python bindings for Anserini (later Pyserini) and adapted a Siamese CNN model for pairwise Learning to Rank

**UNIVERSITY OF WATERLOO** | RESEARCH ASSISTANT  
May 2017 - Aug. 2017 | Waterloo, ON

- Assisted Prof. Robin Cohen and her PhD student on a research project to improve web page segmentation for screen readers
- Implemented an interface for collecting ground truth data, targeting pages lacking accessibility attributes (e.g., ARIA)

## INDUSTRY EXPERIENCE

**UBER ADVANCED TECHNOLOGIES GROUP (ATG)** | RESEARCH INTERN  
Jan. 2020 - Apr. 2020 | Toronto, ON

- Re-implemented several different approaches of multi-view reconstruction and verified the performance
- Developed a method to reconstruct 3D human shapes from a multiple-camera dome
- Quickly gained knowledge in multi-view geometry, optimization and 3D shape processing

## **UBER ADVANCED TECHNOLOGIES GROUP (ATG) | RESEARCH INTERN**

May 2019 – Aug. 2019 | Toronto, ON

- Worked on LiDAR point cloud segmentation problems using deep learning approach
- Implemented the segmentation code with CNN using PyTorch

## **WISH | DATA & RELEVANCY ENGINEER**

Sept 2018 – Dec. 2018 | Toronto, ON

- Built a language detector that is capable of detecting 26 languages with high precision
- Assisted with building new infrastructure for serving user product recommendations
- Compared and analyzed a set of procedures for selectively recommending promoted products and made recommendations regarding the best method

## **WISH | FULL STACK ENGINEER**

Jan. 2018 – Apr. 2018 | Toronto, ON

- Built web applications for non-technical administrators for management work
- Implemented reminders and advertisements in form of UI features such as banners and popups
- Created several diagnostic reports targeting multiple problems of platform that are sent to administrators on a recurring basis