# Oliver Huang

MSc Student, Computer Science, University of Toronto

40 St George St, Toronto, ON
+1 (416) 838-7676
oliver@cs.toronto.edu
oliver-huang.com
Google Scholar

## RESEARCH INTERESTS

**Human-Computer Interaction, Human-Centered AI, Data Visualization, AI in Education**

My research examines human–AI interaction for learning and decision support, developing technologies that scaffold sensemaking and strengthen the reliability of AI-assisted analysis. I focus on methods that connect exploration, explanation, and reflection to sustain engagement across educational and applied contexts.

## EDUCATION

Sep 2024 – May 2025 **University of Toronto**
MSc in *Computer Science*
**CGPA**: 4.0/4.0
Advisor: Carolina Nobre
Thesis: Supporting Exploratory Data-Driven Decision-Making with Narrative Scaffolding

Sep 2019 – May 2024 **University of Toronto**
HBSc in *Computer Science*
**CGPA**: 3.81/4.0

## RESEARCH & WORK EXPERIENCE

Sep 2024 – Present **University of Toronto**, *Graduate Researcher and Teaching Assistant*

May 2023 – Oct 2024 **DGP Lab, University of Toronto**, *Research Intern*
Research with *Majeed Kazemi, Tovi Grossman*
Built scalable LLM-powered programming tools using novel representation techniques to support student learning and reduce overreliance on AI.

Sept 2022 – Jan 2023 **HIVE Lab, University of Toronto**, *Research Intern*
Research with *Carolina Nobre*
Built and evaluated novel visualization systems to enhance time-series data exploration and pattern discovery.

May 2022 – Jun 2023 **DSDE Lab, Huawei Technologies**, *Assistant Research Engineer*
Research with *Paul Lee and Chen Chong*
Designed clusters management system for multi-master MySQL synchronization and conducted performance evaluations on lock latency and reclaim rate.
Contributed to VLDB 2023 Taurus MM: bringing multi-master to the cloud

May 2021 – Aug 2021 **Fortran Traffic System Limited**, *Full Stack Developer*
Developed back-end applications and database schemas for traffic simulation in V2X (Vehicle-to-Everything) and ITS (Intelligent Transportation Systems).

Jan 2021 – Apr 2021 **University of Toronto Application Development Association**, *Front-end Developer*
Built responsive web features for 30+ pages with enhanced user experience.

## MANUSCRIPTS UNDER REVIEW

2025 Runlong Ye, **Oliver Huang**, Patrick Lee, Micheal Liut, Carolina Nobre, Ha-Kyung Kong. Reflexis: Supporting Reflexivity and Rigor in Collaborative Qualitative Analysis though Design for Deliberation
*In Submission – CHI 2026*

## FULL CONFERENCE PAPERS

2025 **Oliver Huang**, Muhammad Fatir, Sangho Suh, Hariharan Subramonyam, Carolina Nobre. Narrative Scaffolding: A Framework for Supporting Data-Driven Sensemaking Through Externalized Reasoning
*IUI 2026 - In Proceedings of the 31st International Conference on Intelligent User Interfaces*

2025 Zijian Zhang, Pan Chen, **Oliver Huang**, Runlong Ye, Michael Liut, Alán Aspuru-Guzik. TreeWriter: Revolutionizing Collaborative Writing with Hierarchical AI Assistance
*IUI 2026 - In Proceedings of the 31st International Conference on Intelligent User Interfaces*

2025 **Oliver Huang**, Carolina Nobre. ViStruct: Simulating Expert-Like Reasoning Through Task Decomposition and Visual Attention
*VIS 2025 - IEEE Transactions on Visualization and Computer Graphics*

2025 **Oliver Huang**, Patrick Lee, Carolina Nobre. From Reality to Recognition: Evaluating Visualization Analogies for Novice Chart Comprehension
*EuroVis 2025 - The 27th Eurographics Conference on Visualization 2025*

2025 Majeed Kazemitabaar, **Oliver Huang**, Sangho Suh, Austin Z Henley, Tovi Grossman. Exploring the Design Space of Cognitive Engagement Techniques with AI-Generated Code for Enhanced Learning
*IUI 2025 - In Proceedings of the 30th International Conference on Intelligent User Interfaces*

## EXTENDED ABSTRACTS

2025 **Oliver Huang**, Carolina Nobre. Toward Supporting Narrative-Driven Data Exploration: Barriers and Design Opportunities
*VIS 2025 Poster*

2025 Runlong Ye, Patrick Yung Kang Lee, Matthew Varona, **Oliver Huang**, Carolina Nobre. ScholarMate: A Mixed-Initiative Tool for Qualitative Knowledge Work and Information Sensemaking
*CHIWORK 2025 - Adjunct Proceedings of the 4th Annual Symposium on Human-Computer Interaction for Work*

2025 Zijian Zhang, Pan Chen, Fangshi Du, Runlong Ye, **Oliver Huang**, Michael Liut, Alán Aspuru-Guzik. TreeReader: A Hierarchical Academic Paper Reader Powered by Language Models
*VL/HCC 2025 - The 25th IEEE Symposium on Visual Languages and Human-Centric Computing*

## AWARDS & HONORS

2024 **Bell Graduate Scholarship**
University of Toronto, Department of Computer Science
*Amount: $20,000*

2023 **NSERC Undergraduate Student Research Award**
University of Toronto, Department of Computer Science
*Amount: $7,500*

2023 **UTAPS Undergraduate Student Scholarship**
University of Toronto, Faculty of Arts & Science
*Amount: $10,400*

2023 **Tom Hull Scholarship In Computer Science**
University of Toronto, Department of Computer Science
*Amount: $1,200*

2023 **New College Council In-course Scholarship**
University of Toronto, Faculty of Arts & Science
*Amount: $750*

2019-2025 **Dean's List**
University of Toronto, Faculty of Arts & Science

## PROFESSIONAL SERVICES

2025 Program Committee Member & Reviewer: **4**× Full Paper **IUI 2025**

2025 External Reviewer: **5**× Full Paper **CHI 2025**

2025 External Reviewer: **1**× Full Paper, **2**× Workshop Paper, **VIS 2025**

2025 Peer Mentor: **CSSU Undergraduate Student Research Program**

2025 Peer Mentor: **Student-Industry Partner Project Showcase**

## ADVISING

May 2025 - Oct 2025 **Muhammad Fatir**, Computer Science (class of 2027)

Jan 2025 - Oct 2025 **Steven Luo**, Computer Science (class of 2027)

## TEACHING EXPERIENCE

Fall 2025 **CSC316: Data Visualization**, Coordinator: Carolina Nobre

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| Fall 2025 | **CSC309: Programming on the Web**, Coordinator: Pan Chen |
| Summer 2025 | **CSC316: Data Visualization**, Coordinator: Carolina Nobre |
| Winter 2025 | **CSC316: Data Visualization**, Coordinator: Carolina Nobre |
| Fall 2024 | **CSC309: Programming on the Web**, Coordinator: Kianoosh Abbasi |
| Fall 2024 | **CSCC10: Introduction to Human Computer Interaction**, Coordinator: Naureen Nizam |
| Fall 2024 | **CSC207: Software Design**, Coordinator: Jonathan Calver |

## Technical Skills

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| Programming | Python, Typescript, Javascript, Java, C, C++ |
| Data Analysis | R, SQL, Tableau, PowerBI, Matplotlib, Seaborn |
| Frameworks | Next, React, Node, D3, Django, Flask, FastAPI, Pandas, NumPy, OpenCV, TensorFlow, PyTorch |