

# Oliver Huang

Dynamic Graphic Project Lab  
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## Education

- 2024–2026: **M.Sc in Computer Science**, *University of Toronto*, **CGPA**: 4.0, **Advisor**: Carolina Nobre.  
**Area**: Data Visualization, Human-Computer Interaction (LLM), CS Education
- 2019–2024: **HB.Sc in Computer Science**, *University of Toronto*, **CGPA**: 3.82, **Mentor**: Tovi Grossman, Carolina Nobre.  
**Area**: Machine Learning, Human-Computer Interaction, Web Development, Database System

## Research & Work Experience

### University of Toronto, Toronto

- Jul 2022 – Present **Research Thesis: Designing Personalized scalable Interactive Data Visualizations for Enhanced Learning and Reflection.**

Developing scalable, intelligent, and personalized learning experiences for LLM-based computing education. Focusing on the intersection of HCI, AI, and Data Visualization

Advisor : **Carolina Nobre**, Assistant Professor, Department of Computer Science ([Personal Web-page](#))

- Apr 2023 – Sep 2024 **Constructive Friction: Exploring the Design Space of Reflection Techniques that Mitigate the Illusion of Learning AI-Generated Code.**

Developed scalable and personalized LLM-powered programming tools, employing different representation techniques. Aimed at maximizing learning gains and optimizing the educational experience.

Advisor : **Tovi Grossman**, Associate Professor, Department of Computer Science ([Personal Web-page](#))

- Jan 2023 – Apr 2023 **Address Emerging Challenges in Hyperscale Data Processing.**

Combat the TCP segmentation effect on cloud database systems, helped in the design of DPU-optimized disaggregated data system storage.

Advisor : **Qizhen Zhang**, Assistant Professor, Department of Computer Science ([Personal Web-page](#))

### Huawei Technologies, Markham

- May 2022 – Aug 2023 **Design Robust Cluster Management System for Synchronizing Multi-Master Environments.**

Designed and developed a robust cluster management system that synchronizes multiple masters with different statuses (i.e., active, starting, initialized, stopped), ensuring seamless coordination and operation. Conducted comprehensive performance evaluations and analyses, focusing on lock latency and reclaim rate, across MySQL server environments, providing valuable insights for optimization on VLDB 2023 Taurus MM: bringing multi-master to the cloud

Advisor : **Chong Chen & Paul Lee**, Distributed Scheduling and Data Engine Lab ([Personal Web-page](#))

### Fortran Traffic Systems Limited, Scarborough

- May 2021 – Aug 2021 **Full Stack Developer.**

Developed high-performance and sustainable back-end applications for traffic simulation, contributing to V2X (Vehicle-to-Everything) and ITS (Intelligent Transportation Systems) systems.

Designed and implemented 8 dynamic database schemas utilizing the Python SQLite module, enabling the flexible storage of traffic network configurations.

### University of Toronto Application Development Association, Toronto

- May 2021 – Aug 2021 **Front-end Developer.**

Developed front-end features for over 30 responsive web pages, catering to clients' requirements and needs. Implemented navigation bars, animations, popovers, and carousels to enhance user experience and engagement.

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## Selected Projects

- Research ***Time Series Donuts Chart Visualization***, ([GitHub](#)).  
Designed and implemented an innovative visualization combining time series data with pie charts, featuring playback functionalities and user interaction tracking, to enhance data analysis and trend comparison.  
Tools : React.js, D3.js, Chart.js, Ttrack.js, Shepherd.js, Qualtrics API
- Research ***LLM-Assisted Programming Code Representation Techniques***, ([GitHub](#)).  
Implemented a range of features, including live coding visualizations, to enhance code tracing skills and facilitate engaging learning experiences through AI coding assistants.  
Tools : Typescript, Node.js, React.js, Tree-sitter, Pandas, MongoDB
- Personal ***Restaurant Tracker JavaScript Library***, ([GitHub](#)).  
Created an intuitive interface for restaurant owners to visualize and manage timelines, income spreadsheets, and charts, with tailored insights for online delivery services.  
Tools : Javascript, CSS, HTML, Chart.js
- Team ***Simulance Game Testing Platform***, ([GitHub](#)).  
Developed a comprehensive game testing platform with an Observation room using the Zoom API, enabling dual video streams and real-time video chat for observing testers' performance and facial expressions.  
Tools : Vue.js, Java, Bootstrap, Express.js, MongoDB

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## Fellowships & Awards

- 2024 **Bell Graduate Scholarship**(value: \$20,000)  
2024 **Ontario Graduate Scholarship**(value: \$15,000)  
2023 **NSERC Undergraduate Student Research Award**(value: \$7,500)  
2023 **UTAPS Undergraduate Student Scholarship**(value: \$10,400)  
2023 **Tom Hull Scholarship In Computer Science**(value: \$1,200)  
2021 **New College Council In-course Scholarship**(value: \$750)

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## Computer skills

- Programming Python, PyTorch, C#, C, C++, Java, Typescript, R  
Web HTML, React, Node, Angular, Vue  
Database SQL, MySQL, PostgreSQL, SQLite, MongoDB

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## Teaching Assistantship

- Fall, 2024 : **CSC309: Programming on the Web**, *Coordinator:Kianoosh Abbasi*.  
Fall, 2024 : **CSCC10: Introduction to Human Computer Interaction**, *Coordinator: Naureen Nizam*.  
Fall, 2024 : **CSC207: Foundations of Machine Learning**, *Coordinator:Paul Gries*.