

Hongyi Sun

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EDUCATION

UNIVERSITY OF TORONTO

BSc IN COMPUTER SCIENCE

Sept 2017 - Present | Toronto, ON

Candidate Honours Bachelor of Science (HBS), Computer Science Specialist with a focus in Artificial Intelligence and Computer Vision

cGPA: 3.99 / 4.00

COURSEWORK

Graduate

Physics-based Animation(A+)

Neural Nets and Deep Learning

(Winter 2022)

Undergraduate

Software Design(A+)

Modern Symbolic Logic(A+)

Intro to Databases(A)

System Programming(A+)

Data Structures & Analysis(A+)

Intro Statistic(A)

Multivariable Calculus(A+)

Operating Systems(A+)

Intro to Visual Computing(A+)

Intro to AI(A+)

Intro to Machine Learning(A+)

Algo Design & Analysis(A+)

SKILLS

PROGRAMMING

Languages:

Java • C • C++ • Python • Javascript

Kotlin • Bash • HTML • \LaTeX

• CSS • Swift • SQL • Verilog

Tools/Other:

Git • React • NodeJS • Express

Numpy • Selenium • Firebase •

MongoDB • PostgreSQL

OpenCV • TensorFlow • PyTorch

PUBLICATION

CoordX: Accelerating Implicit Neural Representation with a Split MLP Architecture

Ruofan Liang, **Hongyi Sun**, Nandita Vijaykumar

Area: Implicit Neural Representations, Computer Vision.

Accepted at ICLR 2022.

RESEARCH EXPERIENCE

ROBOT VISION AND LEARNING LAB | RESEARCH ASSISTANT

Jun 2020 - May 2021 | Toronto, ON

- Worked with professor **Florian Shkurti** on imitating a game engine using a differentiable neural network renderer to help train an autonomous driving policy.
- Implemented the differentiable neural network renderer, which acts as an implicit neural representation of the scene.
- Modified the network to improve its accuracy on large scenes with dynamic objects.
- Provided a video demonstration that helped our project to win the **2020 Amazon research award**.

COMPUTER SYSTEMS AND NETWORKS GROUP | RESEARCH ASSISTANT

May 2021 - Present | Toronto, ON

- Working with professor **Nandita Vijaykumar** on accelerating coordinate-based multilayer perceptron (MLP) networks. This project started as a part of the undergraduate summer research program, and is funded by the Natural Sciences and Engineering Research Council (NSERC) and the computer science department at University of Toronto.
- Designed a new architecture for coordinate-based neural representations that significantly improve the training and inference speed without incurring a reduction in reconstruction accuracy.
- The result of this research has been submitted and accepted by ICLR 2022.

INDUSTRY EXPERIENCE

QUALCOMM | SOFTWARE ENGINEER INTERN

May 2020 - April 2021 | Markham, ON

- Worked in the automotive video team, primarily worked on QNX Hypervisor (with Android GVM) on the latest Qualcomm Automotive Chipsets.
- Designed and developed features for video drivers that increased their overall performance and added support for new video codec formats to video drivers.
- Debugged internal issues and issues reported by the external customer on a regular basis, developed a complete unit testing pipeline for video components.
- Performed validations on the video encoding and decoding process and assessed their performance across various platforms.
- Coordinated with different teams and customers on task progresses, tracked and updated the progress on JIRA pages, and updated video validation steps and performance KPIs on team Confluence pages.

AWARDS

2018,2019,2021	Dean List Scholar
2019	The Professor William Kingston and Dr John Kingston Scholarship (\$1,000)
2021	F Ray Irwin Scholarship (\$1,000)
2021	NSERC Undergraduate Student Research Award (\$7,500)