

Julian Ding

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Education

Master of Science (prospective): Toronto Computer Imaging Group University of Toronto	Sep 2026 - Present
Bachelor of Science: Combined Honours in Computer Science and Physics University of British Columbia	Sep 2017 - Apr 2022
◦ Cumulative GPA: 92.4% ◦ Honours Thesis: Simulation of the Kitaev planar code error threshold under a photonic local error model (10.14288/1.0415052 🔗)	

Research Awards

Canada Graduate Research Scholarship – Master’s (CGRS-M) <i>National Sciences and Engineering Research Council (NSERC)</i> Proposal: Opportunistic Doppler time-of-flight rendering via single-photon avalanche detectors	27000 CAD Sep 2026
2026-27 Vector Scholarship in AI <i>Vector Institute</i>	17500 CAD May 2026
Undergraduate Student Research Award <i>National Sciences and Engineering Research Council (NSERC)</i> Project: UniMAP: model-free detection of unclassified noise transients in LIGO-Virgo data using the temporal outlier factor	6000 CAD May 2021
Undergraduate Student Research Award <i>National Sciences and Engineering Research Council (NSERC)</i> Project: A convolutional neural network training pipeline for Hyper-Kamiokande neutrino event data	4500 CAD May 2019

Selected Publications

A divisive normalization brightness model for tone mapping Julian Ding, Peter Shirley <i>Proceedings of EGSR 2025</i> (10.2312/sr.20251182 🔗)	Jun 2025
GSpyNetTree: a signal-vs-glitch classifier for gravitational-wave event candidates Sofía Álvarez-López, Annudesh Liyanage, Julian Ding, Raymond Ng, Jess McIver <i>Classical and Quantum Gravity</i> , 41(8), 085007 (10.1088/1361-6382/ad2194 🔗)	Mar 2024
UniMAP: model-free detection of unclassified noise transients in LIGO-Virgo data using the temporal outlier factor Julian Ding, Raymond Ng, Jess McIver <i>Classical and Quantum Gravity</i> , 39(13), 135011 (10.1088/1361-6382/ac7278 🔗)	Jun 2022

Conference Presentations

A divisive normalization brightness model for tone mapping

Julian Ding, Peter Shirley

36th Eurographics Symposium on Rendering

Copenhagen, Denmark

Jun 2025

A Learning Machine: An Introduction to the Technique of Particle Identification with Convolutional Neural Networks in Water-Cherenkov Detectors

Julian Ding, Patrick de Perio, Wojciech Fedorko

55th Canadian Undergraduate Physics Conference

2019 TRIUMF Student Symposium

Montréal, QC

Nov 2019

Vancouver, BC

Aug 2019

Professional Experience

Software Developer/Data Scientist

Activision Publishing (Microsoft), Demonware Studio

Sep 2022 - Jul 2026

- Spearheaded an initiative to standardize and overhaul studio-wide capacity planning and performance analysis procedures to a data-driven, linear-regression-based framework.
- Designed and implemented data analysis automation and visualization service to improve accuracy of loadtesting, which is now used as a diagnostic tool across the studio.
- Implemented multiple improvements to the loadtest simulation framework, including improving the load-balancing algorithm and automating the process of running loadtests with specific profiles.
- Collaborated with researchers and developers in the Graphics division to investigate perceptually based tone mapping algorithms.

Research Experience

Undergraduate Research Assistant, Gravitational Waves Group

University of British Columbia, Department of Physics and Astronomy

May 2021 - Aug 2022

- Designed and implemented UniMAP, a novel multi-scale temporal outlier detection algorithm to identify transient noise in gravitational wave detector data.
- Helped design and validate GSpyNetTree, an image classification model that uses a hybrid machine learning architecture based on a decision tree of convolutional neural networks to identify different classes of transient noise in gravitational wave detector data and differentiate them from real astrophysical signals.

Undergraduate Research Assistant, Hyper-Kamiokande Group

TRIUMF

May 2019 - Aug 2019

- Implemented a training pipeline for a convolutional-neural-network-based image classifier to distinguish between different types of neutrino decay events based on their Cherenkov radiation patterns.

Teaching Experience

Undergraduate Teaching Assistant - Introductory Physics Lab

University of British Columbia, Department of Physics and Astronomy

Sep 2020 - Aug 2021

- Assisted students with their lab experiments.
- Graded lab papers and exams.

Undergraduate Teaching Assistant - Calculus (1+2) Tutorials

University of British Columbia, Department of Mathematics

Sep 2018 - Aug 2019

- Led tutorial lectures and helped students work through tutorial problems.
- Wrote homework answer keys and graded homework.

Professional Development

IBM Quantum Error Correction Summer School

*Tarrytown, New York
Jul 2022*

- Participated in four weeks of lectures and student talks on quantum error correction research.
- Competitive application; IBM fully funded all travel and living costs for the duration of the summer school.

Academic Community Involvement

Academic Vice-President, UBC Physics Society

Sep 2021 - Apr 2022

University of British Columbia, Department of Physics and Astronomy

- Organized and led introductory workshops on LaTeX and Python skills.
- Planned and participated in club fundraisers and event planning.

Residence Advisor, Walter Gage Residence

Sep 2019 - Mar 2020

University of British Columbia, Student Housing and Hospitality Services

- Organized weekly community-building events.
- Helped resolve resident conflicts and complaints.

Technical Skills

Programming Languages: Python (NumPy, Pandas, PyTorch, TensorFlow), Golang, SQL

Tools: Docker, Kubernetes, Jenkins, Git

Visualization: Matplotlib, Plotly, Bokeh, $\text{\LaTeX}$