

Wisang Sugiarta

303-829-4250 | wisang.sugiarta@colorado.edu

EDUCATION

Ph.D - Computational Physics

2024 – 2028

University of Colorado, Boulder

Boulder, Colorado

- Advisor: Jed Brown (CS)
- Thesis: Computational fluid dynamics, turbulence and machine learning.

M.Sc - Computer Science

2023

University of Montreal & Mila

Montreal, Canada

- Advisor: Emma Frejinger
- Thesis: Decision-focused learning for multi-commodity network optimization.

B.Sc - Physics & Computer Science

2021

McGill University

Montreal, Canada

- Thesis: Monte Carlo simulation of high-energy radiation in medical physics.

EXPERIENCE

Research Assistant - Scientific Computing

08.2024 –

University of Colorado

Boulder, Colorado

- Development of RDycore program related to the Energy Exascale Earth System Model. Mainly contributing to CEED and PETSc.
- Conducted research on modelling extreme wind events in the front range of the Rocky Mountains using machine learning and scientific computing. Has strong implication in forest fires and storms.

Quantitative Strategist - Associate

04.2023 – 08.2024

Morgan Stanley

Montreal, Canada

- Completed the Graduate Quantitative Finance Program
- Sat on Quantitative Derivative Strategies - Delta One Desk

Scientific Research Intern

09.2021 – 05.2022

Environment Canada

Montreal, Canada

- Part-time graduate research position in the Meteorological Research division.
- Work hand-in-hand with NASA scientists to develop software that can predict river flow using data from satellites.
- Develop and optimize state-of-the-art multi-grid physics models in hydrodynamic modeling, tidal analysis, and prediction in rivers.

Data Science Intern

05.2022 – 09.2022

Intact Financial - Data Lab

Montreal, Canada

- Research and Methodologies Team
- Research and create prototypes of state-of-the-art ML and statistical techniques for pricing and risk models.
- Analyzed model with backtesting, benchmarking, sensitivity analysis.

Applied Artificial Intelligence Intern

05.2021 – 09.2021

National Bank of Canada

Montreal, Canada

- Developed ML models for applications in risk and business analysis.
- Developed ML solutions to assure mathematical fairness in classification models.
- Co-authored bank-wide explainability and fairness guidelines to assess mathematical model development.

Data Science Intern

12.2020 – 08.2021

Bureau des données clinico-administratives, Ministry of Health in Quebec

Montreal, Canada

- Used traditional statistical, machine learning and time-series forecasting methods to predict hospitalization and death rates of the sub-regions in Quebec.
- Developed data-driven analysis to help government officials make public health policy decisions throughout the 2020 pandemic.

Computational Physics Researcher

02.2020 – 12.2020

Medical Physics Unit, McGill University

Montreal, Canada

- Implemented deep learning methods (CNNs) to create software that segments cancer cells from healthy cells and fast radiation dose calculations.
- Analysis of the radiation therapy Monte Carlo simulation software to compare RBE of patient specific cell size distributions and other quantities.

Head Supervisor and Instructor

Summer 2020

Northern Village of Kuujjuaq

Kuujjuaq, Canada

- Implementing and instructing lifesaving candidates on the procedures and regulations of the Canadian National lifesaving program.
- Supervise staff, schedule shifts and manage daily tasks.

SCHOLARSHIPS

Natural Sciences and Engineering Research Council

2021-2023

42,000 \$ for 2 year master's degree.

Canada

ACADEMIC PUBLICATIONS AND PROJECTS

Predicting Individual COVID-19 Outcomes during Quebec's Second Wave

2021

- * Being reviewed at Artificial Intelligence in Medicine
- * Aim of study is to predict patient-specific outcome after a positive COVID-19 diagnosis using clinical-administrative data. Achieved above 95% AUC and sensitivity scores in the study.
- * [Link](#)

Analysis of the RBE of Particle Radiation Using 3D Models | RI-MUHC

2020

- * A novel cell segmentation method to make predictions of RBE using tissue models containing the same cell and nucleus size distributions as found using computer vision in a patient's histopathological sample and Monte Carlo based simulation using inhouse software.
- * [Link](#)

INVITED TALKS

The Canadian Meteorological and Oceanographic Society (CMOS) Congress |

2022

- * Invited to present work done in "A Framework for Estimating River Tides and Estuary Discharges from the SWOT Satellite Mission"
- * Work done as a part of Environment Canada Internship.

Artificial Intelligence and Data Mining Exhibition in Health Research 2021 |

2021

- * Invited to present work done in "Predicting Individual COVID-19 Outcomes during Quebec's Second Wave"

OTHER

Tutor/Mentor

09.2020 – 04.2022

McGill AI & Polytechnique AI

Montreal, Canada

- * Help run tutorials for low-level undergraduate students looking to get into machine learning.

CEGEP Math Tutor

09.2017 – 09.2020

Dawson College

Montreal, Canada

- * Hold 3 hour office hour to tutor CEGEP math courses (Calculus I, II and Linear Algebra).

Spoken Languages: English (Native), French (Native)

Coding Languages: Java, Python, OCaml, Bash, Julia

Interests: Former Junior A Hockey, Rock Climbing, Ski Touring.