Name & Contacts

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About Me

I am a 4 year Astronomy & Physics Double Major at the University of Toronto. I have research interests and experience in the fields of Solar Physics, Star Evolution, Formation and Astro-fusion processes as well as optical telescopes. I am a disciplined and fast learner with strong interests in the fields of engineering, semiconductors, data, modelling and machine learning. I will only be available to work starting June 2025.

Experience

University of Toronto / Work-Study Remote Observatory Assistant

September 2024 - Present

I was recently hired to work as a remote observatory assistant for the university's recently completed observatory with remote observing capabilities under the supervision of Prof. Michael Reid. Proposed projects involve the characterisation of the telescope, improvements on interface and control and an exposure time calculator.

University of Toronto / Work-Study Research Assistant

September 2023 - August 2024

Under the guidance of Prof. Rachel Friesen, I utilised machine learning packages to analyse star formation regions, identifying and categorising regions of organic molecules in such regions. Future work includes using such information to probe mechanisms for molecule formation.

Tutor Doctor / Part-Time Tutor

September 2022 - PRESENT

Tutored high school students in Math and Physics, recognized as Tutor of the Month in June 2023 for exceptional student performance and feedback.

Physics Student Union / Treasurer

May 2024 - PRESENT

Involved in budgeting, looking for sponsors and processing reimbursements for the Student Union. I also plan outreach events for the student body. Updated the reimbursement process to streamline processes and simplify procedures to satisfy auditing needs

Singapore Armed Forces / Combat Medic

October 2019 - June 2021

Operated as the primary triage medic at the camp's medical centre, efficiently assessing and prioritizing 60-80 patients a day. Volunteered for the COVID-19 triage team, assessing and managing the health of 400 foreign workers relocated to an army base. Honoured with the COVID-19 Resilience Medal for outstanding contributions to the triage and care of relocated foreign workers during the pandemic.

Education

University of Toronto / Astronomy & Physics

September 2021 - June 2025

Notable courses taken include AST399Y1 Research Opportunity Programme, Designed 2 Astronomy labs for undergraduate Astronomy courses under the supervision of Prof. Lea Hirsch at the University of Toronto Mississauga. CTA200H1 Computing in Astrophysics learnt how to use Git, access cloud computing, Monte Carlo methods and more.

Catholic Junior College / S-C GCE 'A' Levels

Selected to participate in the National University of Singapore Science Research Programme as a Higher 3 course for 'A' Levels. Worked on a thesis on Modified Energy Dispersion Relations in Neutrino Oscillations

Current Projects

Smart Telescope Arrays (STARS)

Working on building an array of heap smart telescopes to improve signal-to-noise ratio such that data from the array can be scientifically valuable. The project is part of coursework supervised by Prof. Roberto Abraham.

E.C. Carr Astronomical Observatory (CAO) exposure time Calculator

Building an exposure time calculator based on the characterisation of the telescope, environmental conditions, moon phase, and brightness of the object as part of my Work Study mentioned above under the supervision of Michael Reid.

Gravity of complex molecules in the Taurus Molecular Cloud (TMC-1)

Utilising data obtained as a research assistant under Prof. Rachel Friesen, I am now working with Dr. Duo Xu to analyse whether each cluster would be bound or dispersed using identified clusters to look at column density and subsequently the gravity from the column.

Completed Works and Projects

Photometry of Type II Supernova SN 2023ixf with a Worldwide Citizen Science Network DOI: 10.3847/2515-5172/ace41f

Longitude Latitude finder tool as part of Astronomy lab designed for undergraduates https://raw.githack.com/ruyixu00/Lat-Long-Finder/main/index.html

Project from PYJAC 2022, "BLOOP" https://github.com/ruyixu00/Bloop

Thesis on Modified Dispersion Relations in Neutrino Oscillations https://ruyixu00.github.io/SRP_Paper.pdf

Awards

ACE UTSG stock market challenge / ACE UTSG

August 2023: 2nd Placing

Global Learning Case Competition / University of Toronto

February 2023: 1st Placing

PYJAC 2022 / University of Toronto Mississauga WiSC

January 2022: 1st Placing in Beginner Category

UEC Case Competition / University of Toronto Mississauga Undergraduate Economic Council

October 2021: 1st placing

February 2022: 4th placing

October 2022: 2nd placing

October 2023: 2nd placing