

# Daniella Morrone

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## Education

### University of Toronto

Toronto, ON, Canada

H.B.Sc. Astronomy & Physics Specialist, Minors in Mathematics and French Language

2018 – 2023

- 3.86/4.0 GPA in program specific astronomy courses; 3.78/4.0 GPA in upper-level courses.

## Research Experience

### Undergraduate Theses

#### Department of Astronomy & Astrophysics

Toronto, ON, Canada

Advisor: Prof. Jeremy Webb

Fall 2022 & Winter 2023

University of Toronto

- Assess the ability of detecting the presence of an exoplanet and measuring its atmosphere within modelled stellar streams via Transiting Exoplanet Survey Satellite (TESS).

#### Department of Astronomy & Astrophysics

Toronto, ON, Canada

Advisors: Dr. Lamiya Mowla & Dr. Kartheik Iyer; Course Supervisor: Prof. Yanqin Wu

Fall 2021 & Winter 2022

University of Toronto

- Applied a pipeline developed in Summer 2021 (see below) to map the morphological evolution of galaxies in the Hubble eXtreme Deep Field (XDF) and SIMBA Simulations.

### Summer Research

#### Institute for Research on Exoplanets Trottier Grant

Montréal, QC, Canada

Advisor: Prof. Jonathan Gagné

Summer 2022

Université de Montréal, Planétarium Rio Tinto Alcan

- Identified astrometric exoplanet candidates in Gaia Data Release 3.

#### Summer Undergraduate Research Program

Toronto, ON, Canada

Advisors: Dr. Lamiya Mowla & Dr. Kartheik Iyer

Summer 2021

University of Toronto

- Developed a pipeline developed to measure morphological characteristics of galaxies in real observations (XDF), mock observations and simulations (SIMBA Simulations).

#### Summer Student Research Program

Toronto, ON, Canada

Supervisor: Dr. JoAnne McLaurin

Summer 2019

Sunnybrook Research Institute

- Performed immunostaining techniques and analysis of behavioural tests to characterize the behaviour and pathology of prodromal Alzheimer's Disease in the TgF344-AD Rat Model.

## Scholarships & Awards

### Award for Outstanding Exhibition of College Spirit and Pride

University of Saint Michael's College, University of Toronto

2022

### Trottier Excellence Grant

Institute for Research on Exoplanets, \$8,000

2022

### Walter John Helm Scholarship in Astronomy and Astrophysics

University of Toronto, \$1,763.43

2021

### Orientation Leader of the Year Award

University of Saint Michael's College, University of Toronto

2021

### Summer Undergraduate Research Program (SURP) Fellowship

Dunlap Institute for Astronomy & Astrophysics, \$9,595

2021

**Sunnybrook Research Institute (SRI) Summer Student Research Program**  
 Sunnybrook Research Institute, \$6,978

2019

## Presentations

### Conference Talks

- (UPCOMING) Undergraduate Research Conference** **Toronto, ON, Canada**  
 University of Toronto *January 2023*  
*Identifying Exoplanet Candidates in Gaia Data Release 3.*
- iREx Final Presentation Day** **Montréal, QC, Canada**  
 Université de Montréal *August 2022*  
*Identifying Exoplanet Candidates in Gaia Data Release 3.*
- Undergraduate Research Conference** **Toronto, ON, Canada/Online**  
 University of Toronto *February 2022*  
*Mapping the Mass-Light Evolution of Galaxies in the Hubble eXtreme Deep Field (XDF) and SIMBA Simulations.*
- SDSS-V 2021 Collaboration Meeting** **Baltimore, MD, USA/Online**  
 Johns Hopkins University *August 2021*  
*Decoding galaxy evolution through the lens of galaxy morphology.*
- SURP Midterm Presentation** **Toronto, ON, Canada/Online**  
 University of Toronto *July 2021*  
*What does morphology tell us? Understanding galaxy evolution through the lens of galaxy shapes and sizes.*
- Vitrine de savoirs 2021, Sprint-présentations de la relève en recherche** **Edmonton, AB, Canada/Online**  
 L'Acfas, University of Alberta *June 2021*  
*Que nous dit la morphologie des galaxies? Procédure pour identifier les lacunes dans nos simulations actuelles.*

### Conference Posters

- Canadian Conference for Undergraduate Women in Physics** **Online**  
 Canadian Association of Physicists *January 2022*  
*What does morphology tell us? Employing galaxy morphology to decode galaxy evolution.*
- SDSS-V 2021 Collaboration Meeting** **Baltimore, MD, USA/Online**  
 Johns Hopkins University *August 2021*  
*What does morphology tell us? Employing galaxy morphology to decode galaxy evolution.*
- SURP Poster Presentation** **Toronto, ON, Canada/Online**  
 University of Toronto *August 2021*  
*What does morphology tell us? Employing galaxy morphology to decode galaxy evolution.*
- 407 ETR Summer Student Poster Competition** **Toronto, ON, Canada**  
 Sunnybrook Research Institute *August 2019*  
*Behavioural and Pathological Characterization of Prodromal Alzheimer's Disease in TgF344-AD Model.*

### Outreach

- École élémentaire catholique L'Envol, Grade 4-5 Class** **Trenton, ON, Canada/Online**  
*The Sun, The Stars and the Planets Beyond.* *June 2022*
- UofT Talks Presents Interstellar Health: Medicine to New Heights** **Toronto, ON, Canada/Online**  
 Dunlap Institute for Astronomy & Astrophysics Workshop. *June 2022*
- Girls SySTEM** **Toronto, ON, Canada/Online**  
*Astronomy in the Movies: Fiction vs. Reality.* *May 2022*
- St. Gregory Catholic Elementary School, Grade 6 Class** **Toronto, ON, Canada/Online**  
*Let's Talk About Astronomy.* *January 2022*

## Teaching Experience

- Teaching Assistant** **Toronto, ON, Canada**  
 2021-2022

Department of Astronomy & Astrophysics, University of Toronto

- **AST199H1 - Astronomy at the Frontier** (Winter 2023): First year seminar course discussing selected topics in current astronomy, cosmology, and space science.
- **AST201H1 - Stars and Galaxies** (Winter 2022, 2023): Second year course for non-science students about properties and life cycles of stars, galaxies, and the Universe. Duties were organizing and running weekly tutorial sections, invigilating midterm and final, marking assignments and midterm, and being the first point of contact to students via email and online discussion boards.
- **AST101H1 - The Sun and Its Neighbours** (Fall 2021, 2022): First year course for non-science students about the Sun, planets, comets, and the formation of the solar system. Duties included being the first point of contact to students via email and online discussion boards, invigilating midterms, and marking assignments and the midterm test.

## Mentorship

### Mentor

University of Saint Michael's College Mentorship Program

University of Toronto

2021-2022

- Fall 2021 & Winter 2022: **Ruchira Ray Verma**.
- Summer 2021-Winter 2022: **Erica Rose, Jing-Zu Tate Li, Joshua Thoppil, Jou Glasheen**.
- Summer 2021: **Megh Agarwal**.

### Mentee

Astronomy Undergraduate Mentorship Program

University of Toronto

2021-2022

- Fall 2022 & Winter 2023: **Ayush Pandhi**.
- Fall 2021 & Winter 2022: **Simran Nerval**.
- Fall 2020 & Winter 2021: **Jacob Taylor**.

## Other Relevant Work & Volunteer Experience

### Physics Research Panel

Undergraduate Panelist - Second Year Learning Community, University of Toronto

Toronto, ON, Canada

November 2022

### USMC Student Union Electoral By-Laws Review Committee

Committee Member - University of Saint Michael's College (USMC), University of Toronto

Toronto, ON, Canada

July 2022 - April 2023

### Astronomy and Youth

Undergraduate Panelist - Star Chasers

Toronto, ON, Canada/Online

February 2022

### AstroTours

Volunteer - Department of Astronomy & Astrophysics, University of Toronto

Toronto, ON, Canada/Online

December 2021 - February 2022

### St. Mike's Grad Week

Panel Moderator - USMC, University of Toronto

Toronto, ON, Canada/Online

October 2021

### USMC Student Union Mental Health & Accessibility Committee

Committee Member - USMC, University of Toronto

Toronto, ON, Canada

Fall 2021 & Winter 2022

### USMC Mentorship Program

Mentor, Academic Representative - USMC, University of Toronto

Toronto, ON, Canada

Fall 2021 & Winter 2022

### USMC Student Union Formal Event Committee

Committee Member - USMC, University of Toronto

Toronto, ON, Canada

Spring 2020

### USMC Orientation

Leader (2019-2021), Marshal (2022) - USMC, University of Toronto

Toronto, ON, Canada

Summer 2019, 2020, 2021, 2022

## Technical Skills

Proficient in **Python** and have experience with **HTML**. Comfortable using **LaTeX** and **Git**. Have experience with **macOS** command line. Speak **English** with Native proficiency and **French** with Working proficiency.

## Workshops & Training

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- **Teaching Assistant Training:** Teaching Assistants' Training Program (*September 2021*); Accessibility for Ontarians with Disabilities Act (*September 2021*).
- **Astronomy Lectures & Workshops:** SURP Astro 101 Lecture Series & Professional Development Series (*Summer 2021*); CTA200H: Introduction to Computational Astrophysics (*Summer 2021*).
- **Outreach Training:** LivingWorks ASIST (*November 2022*); LivingWorks safeTALK (*Summer 2022*); LivingWorks Start (*Summer 2020, 2021*); Identify, Assist, Refer Education Module (*Summer 2020, 2021, 2022*); Call it out: racism, racial discrimination human rights (*Summer 2021*); Equity & Diversity Training (*Summer 2020*).

## Relevant Coursework

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- **Astronomy:** Astronomy Research, Computational Astrophysics, Introduction to Astrophysics
- **Physics:** Classical & Quantum Mechanics, Electricity & Magnetism, Thermal Physics
- **Mathematics:** Ordinary & Partial Differential Equations, Complex Variables, Multivariable Calculus

## Media Appearances

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<i>Institute for Research on Exoplanets: Website Profile, Facebook Interview &amp; Internship Lookback</i>	2022
<i>Leadership Award for Outstanding Exhibition of College Spirit and Pride: Instagram &amp; Facebook Interview</i>	2022
<i>Astronomy and Youth: Meet Our University Student Panel</i>	2022
<i>St. Gregory Catholic Elementary School: Blog Post &amp; Newsletter</i>	2022
<i>SURP Project Showcase: Poster &amp; Research Summary</i>	2021
<i>SURP Student Spotlight: Student of the Week interview</i>	2021
<i>Meet the SMC Mentorship Team 2021-2022: Facebook &amp; Instagram</i>	2021
<i>L'Acfas Vitrines des savoirs 2021: Event program &amp; Presentation</i>	2021