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*

– 3.80/4.0 GPA in astronomy courses; 3.68/4.0 GPA in upper level courses.

Bishop Allen Academy Catholic Secondary School **Toronto, ON, Canada**
OSSD *2014 – 2018*

– Ontario Scholar, 92% average in top 6 grade 12 courses. Completed 4 Advanced Placement examinations.

Research Experience

Undergraduate Thesis

Department of Astronomy & Astrophysics, University of Toronto **Toronto, ON, Canada**
Advisors: Dr. Kartheik Iyer & Dr. Lamiya Mowla; Super-advisor: Dr. Yanqin Wu *Fall 2021 & Winter 2022*

– Applying the 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

Summer Undergraduate Research Program, University of Toronto **Toronto, ON, Canada**
Advisors: Dr. Kartheik Iyer & Dr. Lamiya Mowla *Summer 2021*

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

Summer Student Research Program, Sunnybrook Research Institute **Toronto, ON, Canada**
Supervisor: Dr. JoAnne McLaurin *Summer 2019*

– 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

Walter John Helm Scholarship in Astronomy and Astrophysics
University of Toronto, $1,763.43 *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

Conferences

(*UPCOMING*) **Mapping the Mass-Light Evolution of Galaxies in the Hubble eXtreme Deep Field (XDF) and SIMBA Simulations.** **University of Toronto/Online**
Undergraduate Research Conference *February 2022*

What does morphology tell us? Employing galaxy morphology to decode galaxy evolution. **Online**
Canadian Conference for Undergraduate Women in Physics, Poster Presentation *January 2022*

Decoding galaxy evolution through the lens of galaxy morphology. **Johns Hopkins University/Online**
SDSS-V 2021 Collaboration Meeting, Lightning Talk *August 2021*

What does morphology tell us? Employing galaxy morphology to decode galaxy evolution. — **Johns Hopkins University/Online**, *August 2021*
SDSS-V 2021 Collaboration Meeting, Poster Presentation

What does morphology tell us? Employing galaxy morphology to decode galaxy evolution. — **University of Toronto/Online**, *August 2021*
SURP Poster Presentation

What does morphology tell us? Understanding galaxy evolution through the lens of galaxy shapes and sizes. — **University of Toronto/Online**, *July 2021*
SURP Midterm Presentation

Que nous dit la morphologie des galaxies? Procédure pour identifier les lacunes dans nos simulations actuelles. — **L'Acfas/Online**, *June 2021*
Vitrine de savoirs 2021, Sprint-présentations de la relève en recherche

Behavioural and Pathological Characterization of Prodromal Alzheimer's Disease in TgF344-AD Model. — **Sunnybrook Research Institute**, *August 2019*
407 ETR Summer Student Poster Competition

Outreach

Let's Talk About Astronomy. — **St. Gregory Catholic Elementary School/Online**, *January 2022*
Grade 6 Class, Invited Talk

Teaching Experience

Teaching Assistant — **University of Toronto**, *2021-2022*
Department of Astronomy & Astrophysics

– **AST101 - The Sun and Its Neighbours**: Marked midterm and assignments for a first year course for non-science students about the Sun, planets, comets, and the formation of the solar system.

– **AST201 - Stars and Galaxies**: Communicated with students via email and discussion boards and marked midterm and assignments for a second year course for non-science students about properties and life cycles of stars, galaxies, and the Universe.

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.

Other Relevant Work & Volunteer Experience

(***UPCOMING***) **Star Chasers** — **Toronto District School Board High School Astronomy Clubs**, *February 2022*
Undergraduate Panelist

AstroTours — **University of Toronto**, *December 2021 - Present*
Volunteer

– Discussed the science motivation and different instruments of the New Horizons Space Probe and James Webb Space Telescope to a public audience.

St. Mike's Grad Week — **University of Toronto**, *October 2021*
Panel Moderator

– Moderated a panel of three UofT alumni from Physical Sciences focusing on academic success, the post-grad journey of the panelists and their careers, geared towards upper year undergraduate students.

USMC Student Union Mental Health & Accessibility Committee — **University of Toronto**, *Fall 2021 & Winter 2022*
Committee Member

– Work alongside the St. Micheal's College (USMC) Student Union VP Mental Health & Accessibility to plan events and workshops, and collaborate with students groups to increase visibility of campus health resources.

USMC Mentorship Program — **University of Toronto**
Mentor, Academic Representative — *Fall 2021 & Winter 2022*

– Actively and regularly communicate with a group of five mentees, both individually and as a group. Create a welcoming and inclusive environment for all mentees and program staff.
– Help all mentees enrolled within the Physical Sciences by answering program-specific questions. Support Professional Development Team in organizing events geared towards academic success.

USMC Orientation — **University of Toronto**
Leader — *Summer 2019, 2020, 2021*

– Oriented and led a group of up to 30 first year students during the first week of university. Guided the group around campus, introduced them to university life and fostered a welcoming community.
– Lead an in-person tours of UofT campus and moderated panels of representatives from the Math and Physical Sciences departments. Awarded Leader of the Year in 2021.

USMC Student Union Formal Committee — **University of Toronto**
Committee Member — *Winter 2020*

– Work alongside the SMCSU VP Community Life to plan and execute the USMC Formal. Worked specifically on promotional aspects of planning the event

Mentorship

Mentor — **University of Toronto**
USMC Mentorship Program — *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 — **University of Toronto**
Astronomy Undergraduate Mentorship Program — *2021-2022*

– Fall 2021 & Winter 2022: **Simran Nerval**.
– Fall 2020 & Winter 2021: **Jacob Taylor**.

Workshops, Training, & Professional Development

Teaching Assistants' Training Program — **University of Toronto**
Trainee – Teaching Assistant — *September 2021*

SURP Astro 101 Lecture Series — **University of Toronto**
Attendee – Summer Research Student — *Summer 2021*

SURP Professional Development Series — **University of Toronto**
Attendee – Summer Research Student — *Summer 2021*

Call it out: racism, racial discrimination & human rights — **Ontario Human Rights Commission**
Trainee – Orientation Leader, Mentor — *July 2021*

LivingWorks Start — **LivingWorks**
Trainee – Orientation Leader, Mentor — *July 2020, 2021*

Identify, Assist, Refer Education Module — **University of Toronto**
Trainee – Orientation Leader, Mentor — *July 2020, 2021*

Shutdown STEM — **University of Toronto**
Attendee — *July 2021*

Introduction to Computational Astrophysics — **University of Toronto**
Student — *May 2021*

Equity & Diversity Training — **University of Toronto**
Trainee – Orientation Leader — *July 2020*

Relevant Coursework

- **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
- **Computer Programming:** Introduction to Computational Astrophysics

Media Appearances

Space Talk Blog Post
Grade 6: Space *2022*

SURP Project Showcase
Poster & Research Summary *2021*

SURP Student Spotlight
Student of the Week interview *2021*

Meet the SMC Mentorship Team 2021-2022
Facebook & Instagram *2021*

Abstract for *Vitrine des savoirs 2021*
Event program *2021*