

Daniella Morrone

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I am a 4th year undergraduate student at the University of Toronto, pursuing an Astronomy & Physics Specialist and minors in both Mathematics and French Language. I am an aspiring early career researcher who is passionate about astronomy and has significant experience and skills to support a career in research. My research interests include galaxy formation and evolution, cosmology and exoplanets.

Education

University of Toronto

H.B.Sc. Astronomy & Physics Specialist, Minors in Mathematics and French Language 2018 – 2023

- 88% average in astronomy courses (3.80 GPA on 4 point scale)
- 84% average in upper level courses (3.64 GPA on 4 point scale)

Bishop Allen Academy Catholic Secondary School

OSSD 2014 – 2018

- Ontario Scholar with 92% average in top six grade 12 courses
- Completed 12 courses and 4 examinations in the Advanced Placement program

Research Experience

Employing Galaxy Morphology to Decode Galaxy Evolution

University of Toronto

Supervisors: Dr. Kartheik Iyer & Dr. Lamiya Mowla

Summer 2021

- Used Python and data from the SIMBA suite of cosmological simulations to measure morphological parameters of high redshift galaxies
- Developed a pipeline comparing morphological characteristics of simulated and observed galaxies
- Participated in midterm and final presentations, created an academic poster and a research summary delivered to Faculty and interested public

Behavioural and Pathological Characterization of Prodromal Alzheimer's Disease in TgF344-AD Rat Model

Sunnybrook Research Institute

Supervisor: Dr. JoAnne McLaurin

Summer 2019

- Performed experiments and data analysis in a laboratory setting
- Characterized behaviour and pathology of prodromal Alzheimer's Disease in a rat model
- Participated in a final presentation, created an academic poster and a research summary

Scholarships, Awards & Honours

Summer Undergraduate Research Program (SURP) Fellowship

Dunlap Institute for Astronomy & Astrophysics, \$9,595 2021

SURP Student Spotlight

Dunlap Institute for Astronomy & Astrophysics 2021

Sunnybrook Research Institute (SRI) Summer Student Research Program

Sunnybrook Research Institute, \$6,978 2019

Ontario Scholar

Toronto Catholic District School Board 2018

- Distinction for graduating students with an average of 80% or greater in top six grade 12 courses

Advanced Placement with Honor Award*Advanced Placement College Board*

2018

- Recognition for attaining an average score of at least 3.25 (on a 4 point scale) on all AP Exams taken and scores of 3.0 or higher on four or more exams

Subject Award in Grade 12 Religious Education*Bishop Allen Academy Catholic Secondary School*

2018

- Recognition of academic excellence

Extended French Certificate with Specialization*Toronto Catholic District School Board*

2018

- Distinction for graduating students having taken a minimum of seven Extended French credits, of which four are French Language credits and three are other credits in French

Instrumental Music Certificate with High Distinction*Bishop Allen Academy Catholic Secondary School*

2018

- Completed four years of Instrumental Music Courses with Distinction

Presentations

Invited & Public Talks

SDSS-V 2021 Collaboration Meeting*Decoding galaxy evolution through the lens of galaxy morphology.***Johns Hopkins University/Online***August 2021***SURP Midterm Presentation***What does morphology tell us? Understanding galaxy evolution through the lens of galaxy shapes and sizes.***University of Toronto/Online***July 2021***Vitrine de savoirs 2021 - Sprint-présentations de la relève en recherche***Que nous dit la morphologie des galaxies? Procédure pour identifier les lacunes dans nos simulations actuelles.***L'Acfas/Online***June 2021*

Conference Posters

SURP Poster Presentation*What does morphology tell us? Employing galaxy morphology to decode galaxy evolution.***University of Toronto/Online***August 2021***SDSS-V 2021 Collaboration Meeting***What does morphology tell us? Employing galaxy morphology to decode galaxy evolution.***Johns Hopkins University/Online***August 2021***407 ETR Summer Student Poster Competition***Behavioural and Pathological Characterization of Prodromal Alzheimer's Disease in TgF344-AD Model.***Sunnybrook Research Institute***August 2019*

Teaching Experience

Teaching Assistant*AST101: The Sun and Its Neighbours***University of Toronto***Fall 2021*

- Marking midterm tests and observing project plans and assignments, assisting with online delivery of course, and participating in training meetings
- Completion of five hours of training in the Teaching Assistant Training Program

Other Relevant Work & Volunteer Experience

USMC Student Union Mental Health & Accessibility Committee

Committee Member

University of Toronto

Fall 2021 & Winter 2022

- Work alongside the VP of Mental Health & Accessibility on the University of St. Michael's College (USMC) Student Union
- Promote and develop mental health & accessibility initiative; plan events, socials and workshops
- Collaborate with other students groups to increase the visibility of mental health & accessibility resources

USMC Mentorship Program

Mentor, Academic Representative

University of Toronto

Fall 2021 & Winter 2022

- Help mentees in a similar program/faculty/study-area regarding program-specific concerns
- Help to organize Professional Development Seminars in the Program
- Leaders in a Registered Study Group & Learning communities project within the program

USMC Orientation

Leader

University of Toronto

Summer 2019, 2020, 2021

- Orient first years into university life, specifically a group of 20-30 students
- Run and moderate events online and in-person
- In 2021, moderated an academic panel (online) and lead a campus tour (in-person)

USMC Student Union Formal Committee

Member

University of Toronto

Winter 2020

- Work alongside the VP of Community Life on the USMC Student
- Plan and execute the USMC Formal event
- Worked specifically on promotional aspects of planning the event

Mentorship

Mentor.....

Ruchira Ray Verma – Mentee

USMC Mentorship Program

University of Toronto

Fall 2021 & Winter 2022

Erica Rose – Mentee

USMC Mentorship Program

University of Toronto

Summer 2021 - Winter 2022

Jing-Zu Tate Li – Mentee

USMC Mentorship Program

University of Toronto

Summer 2021 - Winter 2022

Joshua Thoppil – Mentee

USMC Mentorship Program

University of Toronto

Summer 2021 - Winter 2022

Jou Glasheen – Mentee

USMC Mentorship Program

University of Toronto

Summer 2021 - Winter 2022

Megh Agarwal – Mentee

USMC Mentorship Program

University of Toronto

Summer 2021

Mentee.....

Jacob Taylor – Mentor

Astronomy & Astrophysics Undergraduate Mentorship Program

University of Toronto

Fall 2020 & Winter 2021

Workshops, Training, & Professional Development

Teaching Assistant Training Program

University of Toronto

Teaching Assistant

September 2021

- Training completed: Policies & Procedures for Teaching Assistants at the University of Toronto, Grading, Introduction to Quercus

SURP Astro 101 Lecture Series

University of Toronto

Summer Research Student

Summer 2021

- Summer series of weekly introductory astronomy lectures
- Topics included planets & exoplanets, galaxy formation & evolution, instrumentation, statistics, cosmology, black holes

SURP Professional Development Series

University of Toronto

Summer Research Student

Summer 2021

- Summer series of weekly professional development workshops and seminars
- Topics included careers in astronomy, grad school applications & experiences, presenting research

Call it out: racism, racial discrimination & human rights

Ontario Human Rights Commission

Orientation Leader, Mentor

July 2021

- Foundation for learning about race, racial discrimination and human rights protections under Ontario's Human Rights Code
- Historical overview of racism and racial discrimination, explains what "race," "racism" and "racial discrimination" mean, and provides approaches to preventing and addressing racial discrimination
- Awarded certificate

LivingWorks Start

LivingWorks

Orientation Leader, Mentor

July 2020, 2021

- Teaches how to recognize suicidal behaviours and refer others to help and support
- Series of real life scenarios and interactive modules
- Awarded certificate

Identify, Assist, Refer Education Module

University of Toronto

Orientation Leader, Mentor

July 2020, 2021

- Addresses identification of mental illnesses and methods of assisting and referring to resources
- Awarded certificate

Shutdown STEM

University of Toronto

Attendee

July 2021

- Day-long workshop within the Astronomy & Astrophysics department pertaining to action against racism, with a special focus on Indigenous peoples
- Included presentations, discussions, and activities such as researching and letter-writing

Introduction to Computational Astrophysics

University of Toronto

Student

May 2021

- 2-week intensive introductory course to coding and data analysis with Python, instructed by Dr. Norman Murray
- Covered topics such as advanced plotting, statistical analysis, and machine learning

Equity & Diversity Training

University of Toronto

Orientation Leader

July 2020

- Learned how to create virtual and physical spaces that are inclusive and equitable for all
- Explored ways to become advocates for one another in seeking equity

Relevant Coursework

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

Technical & Personal Skills

- **Programming Languages:** Python, HTML
- **Software:** L^AT_EX, Git
- **Operating Systems:** macOS, Windows
- **Spoken Languages:** English (Native or bilingual proficiency), French (Working proficiency)
- **Personal & Professional Skills:** Leadership, presenting, critical thinking, organization, communication, time management, collaboration

Extracurricular Activities

Pair-A-Dice Board Game Club
General Member

University of Toronto
Fall 2019 & Winter 2020

Vocal & Instrumental Jazz Bands
1st & 2nd Trumpet

Bishop Allen Academy
Winter 2014 - Winter 2018

Concert Band
1st & 2nd Trumpet

Bishop Allen Academy
Winter 2014 - Winter 2018

Media Appearances

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