

Emma Barbisan

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Montreal, QC, Canada

EDUCATION

McGill University, Montreal, QC

Sept. 2016 – April 2021

BSc Liberal Program - Computer Science, Minor in Physics

Bishop Ryan Catholic Secondary School, Hamilton, ON

Sept. 2012 – June 2016

Ontario Secondary School Diploma

RESEARCH EXPERIENCE

Machine learning classification of luminous sources

May 2021 - present

- Supervisors: Dr. Daryl Haggard, Dr. Kristen Dage
- Position: post-baccalaureate work at McGill University
- Developing and implementing deep neural network algorithms to classify globular clusters, ultra compact dwarf galaxies, foreground stars, and background galaxies using Next Generation Virgo Cluster Survey (NGVS) photometric data for use on future large surveys

Survey of archival Chandra Observatory data

Sept. 2020 - Apr. 2021

- Supervisors: Dr. Daryl Haggard, Dr. Kristen Dage
- Position: undergraduate research project at McGill University
- Used CIAO (Chandra Interactive Analysis of Observations) software to access and analyze data of ultra-luminous X-ray sources taken by the Chandra X-ray Observatory
- Created and used Python scripts to aid in the search for and analysis of globular cluster candidate sources

PUBLICATIONS

- **E. Barbisan**, J. Huang, K.C. Dage, D. Haggard, R. Arnason, A. Bahramian, W.I. Clarkson, A. Kundu, J. Strader, S.E. Zepf, "Using Machine Learning to Identify Extragalactic Globular Cluster Candidates from Ground-Based Photometric Surveys of M87", in prep., Monthly Notices of the Royal Astronomical Society

SKILLS

Technical Skills:

- Proficient in Python (astropy, numpy, pandas, tensorflow, matplotlib, etc.), C++, Java, Clojure, Latex, and Microsoft Office
- Basic skills in C, OCaml, MIPS, Matlab, JavaScript, and React
- Other astronomical software: CIAO, SAOImageDS9, TOPCAT
- Experience in undergraduate level physics and chemistry labs

Other Skills:

- Languages: fluent English, intermediate French, and basic Italian
- Actor: experience performing in multiple shows at McGill and in the Montreal community

COURSES

McGill University, Montreal, QC

- COMP 527: Logic and Computation Winter 2021
- COMP 445: Computational Linguistics Fall 2020
- PHYS 396: Undergraduate Research Project Fall 2020
- COMP 546: Computational Perception Winter 2020

Other

- Google's Machine Learning Crash Course Summer 2021

PRESENTED TALKS

- MSI/Physics Summer Student Research Showcase August 2021

WORK EXPERIENCE

Welcome Centre Front Desk Attendant/Tour Guide 2019 – 2021

McGill Enrolment Services, Montreal, QC

- Gave tours of campus and residences (in person and online) to prospective students and their families
- Manned the front desk, ensuring tours go out smoothly
- Answered questions from students with varying academic backgrounds and their families regarding life at McGill, first year topics, and the application process
- Answered emails and phone calls regarding tour scheduling and applications to McGill
- Maintained a detailed record of visitors and tours

Virtual McGill Summer Academy July 2020

McGill University, Montreal, QC

- Corresponded online with a group of high school students
- Coordinated daily with other Team Leaders to ensure an enjoyable, engaging program for the students
- Acted as a Zoom TA, hosting live classes and assisting the instructor
- Animated and participated in daily activities with students on Zoom
- Facilitated and helped lead identity workshops on Zoom

Assistant Programmer 2018

Aaho Ride Start-Up, Montreal, QC

- Worked mainly on the app's front end in terms of design, functionality, and interaction with the app's back end; all written in JavaScript's React Native
- Aided in implementation of the back end and its interactions with the app's database