

## Damien Robertson

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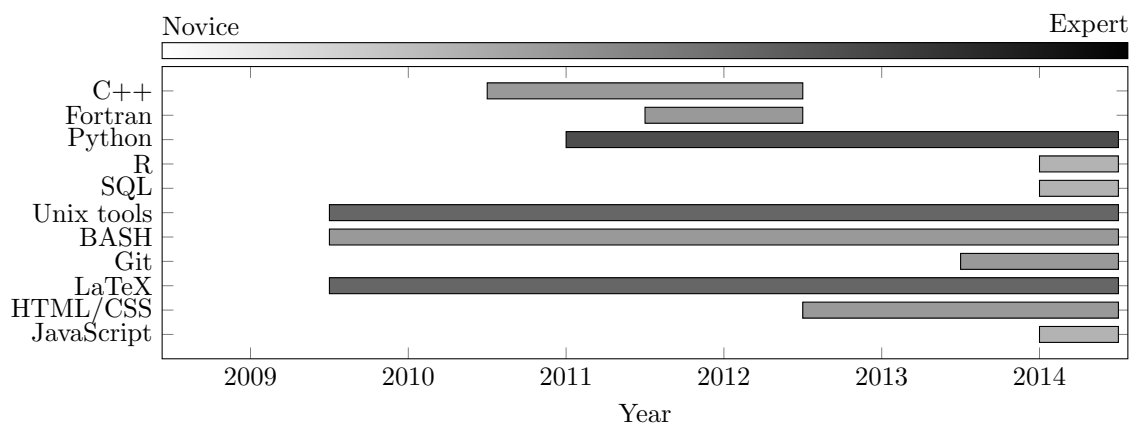
<http://astronomerdamo.github.io/>

## Career Objectives

I am very interested in numerical and scientific computation including data analysis and interpretation. I'm constantly looking for challenging projects that use new and novel methods to explore data and information.

## Profile

- B.Sc., M.Sc. degree in physics and astronomy.
- Coding experience with C++, Python, Bash, and Fortran on UNIX/MAC systems using git version control.
- Versed in dynamic and prototype based object-orientated programming using Python and JavaScript.
- Familiar with database programs, SQL, and statistical language R.
- Advanced problem solving, troubleshooting and self-directed learning skills.
- Curious, self-motivated, and capable of understanding complex phenomenon quickly.
- Well versed in numerical, signal, and statistical analysis using various techniques including computer vision and image processing.
- Experience with scientific technical writing and technical presentations.
- Three published scientific articles including one as lead author.
- Participated in international collaborations with physicists, astronomers, and engineers.



## Education

- **McMaster University** Hamilton, ON  
*M.Sc. Physics and Astronomy* Sept. 2012 - Aug. 2014
  - Thesis: Prestellar Cores in Perseus
- **Saint Mary's University** Halifax, NS  
*B.Sc. Honours, Astrophysics (Summa Cum Laude)* Sept. 2008 - May 2012
  - Thesis: Searching for Correlation in UV and X-ray Emission in the AGN 1H0707-495
- **Algonquin College** Ottawa, ON  
*Diploma - Business Marketing* Sept. 2004 - May 2006
  - Practical applications of marketing including research, advertising and plan implementation.

## Research Experience

**McMaster University** - Hamilton, ON  
Sept. 2012 - Aug. 2014

- Combined multi-wavelength, multi-instrument infrared, and radio observations of star forming regions in two and three dimensions using a combination of self designed Python programs and modules.
- Setup, maintained, and queried SQL databases of pre-stellar sources.
- Evaluated source finding algorithms, performed, and tabulated statistical tests in R and Python.
- Created and maintained Python programs for source finding and structure identification in two and three dimensional data sets.

**Tri-University Meson Facility, TITAN** - Vancouver, BC  
May 2011 - Aug. 2011

- Designed, fabricated, and tested an electrostatic ion barrier gauge to improve detector performance.
- Maintained, tested ultra high vacuum components, and implemented new vacuum pump in beam line.
- Team member in two mass measurement experiments along with routine equipment maintenance.

**Saint Mary's University** - Halifax, NS  
May 2009 - Sept. 2012

- Processed X-ray and UV observations of active galaxies using data reduction pipelines in BASH, C++.
- Created and maintained bulk data sets, mined data for exploration, and quantity correlation.
- Created a Python program to correlate unevenly sampled light curves based on the discrete correlation function algorithm.
- Published paper on time series analysis, worked based on undergraduate thesis.
- Created *N-body* code from scratch to simulate the evolution of the solar system with and without the Jovian planets.

## Publications

### Articles Published or Accepted in Refereed Journals

**Robertson, D.**, Gallo, L.C., Zoghbi, A., Fabian, A.C. (2014) Searching for Correlation in Simultaneous X-ray and UV Emission in the Narrow-line Seyfert 1 galaxy 1H 0707495. Monthly Notices of the Royal Astronomical Society, Submitted.

Gallant, A.T., Bale, J.C., Brunner, T., Chowdhury, U., Ettenauer, S., Lennarz, A., **Robertson, D.**, Simon, V.V., Chaudhuri, A., Holt, J.D., Kwiatkowski, A., Mane, E., Menendez, J., Schultz, B.E., Simon, M.C., Andreoiu, C., Delheij, P., Pearson, M.R., Savajols, H., Schwenk, A., Dilling, J. (2012) New Precision Mass Measurements of Neutron-Rich Calcium and Potassium Isotopes and Three- Nucleon Forces. Phys. Rev. Lett. 109, 032506.

Vasudevan, R., Gallo, L., **Robertson, D.**, Fulford, K. (2011) Variability, Optical - X-ray slope and accretion disc properties in a sample of Seyfert 1 AGN. Proceedings of Science. (NLS1)007.

### Non-Refereed Contributions

**Robertson, D.**, Wilson, C.D., Sadavoy, S., Di Francesco, J. (2013) Herschel Cores in the Perseus Molecular Cloud. CASCA (Canadian Astronomical Society). National conference, poster presentation.

**Robertson, D.**, Gallo, L.C., Fulford, K. (2010) Investigating the Relationship Between X-ray and UV Properties in Type 1 AGNs. CASCA (Canadian Astronomical Society). National conference, poster presentation.

## Teaching and Outreach

- McMaster University Hamilton, ON  
William J. McCallion Planetarium - Dr. Robert Cockcroft Apr. 2013 - Ongoing
  - Public outreach
  - Created original presentations, performed them for private and public audiences and a wide range of ages.
- McMaster University Hamilton, ON  
Teaching Assistant - Neil McKay Sept. 2013 - Apr. 2014
  - System administrator for Physics department undergraduate testing software.
  - Addressed login problems, student marking and managed course and quiz work.
- McMaster University Hamilton, ON  
Teaching Assistant - Dr. Laura Parker Sept. 2012 - Dec. 2012, Sept. 2013 - Dec. 2013
  - Astronomy: Big Questions (AST 2B03)
  - Mediated student discussion, graded student presentations and assignments.
- McMaster University Hamilton, ON  
Teaching Assistant - Neil McKay Dec. 2013 - Apr. 2013, Dec. 2014 - Apr. 2014
  - Astronomy: Physics for Life Sciences (PHY 1L03)
  - Taught two hour tutorial course, maintained office hours for questions and administered student quizzes.
- Saint Mary's University Halifax, NS  
Burke Gaffney Observatory Tour Guide - David Lane May 2010 - Apr. 2012
  - Public outreach
  - Responsible for guiding public audiences, speaking about different tools and aspects of the observatory and addressing any questions.
- Saint Mary's University Halifax, NS  
Teaching Assistant - Dr. David Turner Jan. 2011 - Apr. 2011
  - Introduction to Astronomy (ASTR 1000).
  - Responsible for grading student assignments throughout the semester.
- Saint Mary's University Halifax, NS  
Teaching Assistant - Jodi Asbell-Clarke Sept. 2009 - Dec. 2009
  - Astronomy: Life in the Universe (ASTR 1010).
  - Responsible for grading student assignments throughout the semester.

## Awards

- NSERC Canada Graduate Scholarships - 2013
- Entrance Scholarship - McMaster University - 2012
- Outstanding Talk - Eighth Annual SMU Undergraduate Mini-Symposium - 2011
- TRIUMF Summer Research Award - Atlantic Region - 2011
- CUPC, Second Place - Astrophysics Category (Talk) - 2010
- NSERC Undergraduate Student Research Award winner - 2010
- Atlantic University Physics and Astronomy Conference, Honourable Mention (Talk) - 2010
- Achievement Scholarship (SMU) - 2009 - 2012
- William N. Duggan Memorial Scholarship - 2009
- William Chisholm Scholarship - 2009
- Outstanding Talk - Sixth Annual SMU Undergraduate Mini-Symposium - 2009
- Dean's List (SMU) - 2008 - 2011

## Professional References

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|--|---|
| • Dr. Christine Wilson<br>McMaster University, Professor, Astronomy/Physics                | wilson@physics.mcmaster.ca<br>(905) 525-9140 x27483 |
| • Dr. Luigi Gallo<br>Saint Mary's University, Professor, Astronomy/Physics                 | lgallo@ap.smu.ca<br>(902) 420-5637                  |
| • Dr. Rituparna Kanungo<br>Saint Mary's University, Associate Professor, Astronomy/Physics | rkanungo@ap.smu.ca<br>(902) 420-5428                |
| • Andrew Valencik<br>Saint Mary's University, System Administrator, Computing Science      | andrew@cs.smu.ca<br>(902) 420-5893                  |
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