

Damien Robertson

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

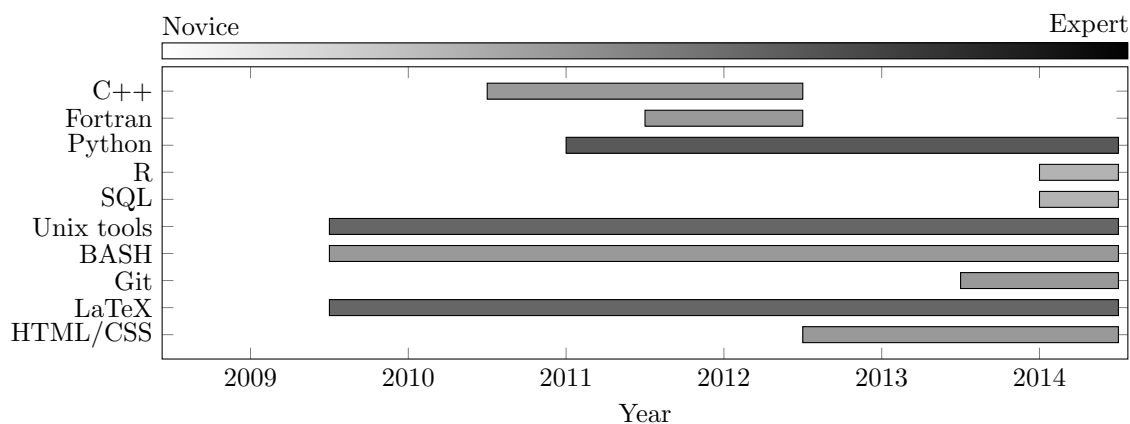
<http://astronomerdamo.github.io/docs/cv.pdf>

Career Objectives

I am very interested in numerical and scientific computation including data analysis and interpretation. I'm constantly looking for challenging projects that may help others use information better.

Profile

- B.Sc., M.Sc. degree in physics and astronomy.
- Coding experience with C/C++, Python, Bash, and Fortran on UNIX/MAC systems using git version control.
- 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 Python scripts and PyPi packages.
- 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
William J. McCallion Planetarium - Dr. Robert Cockcroft
Hamilton, ON
Apr. 2013 - Ongoing
 - Public outreach
 - Created original presentations, performed them for private and public audiences and a wide range of ages.
- McMaster University
Teaching Assistant - Neil McKay
Hamilton, ON
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
Teaching Assistant - Dr. Laura Parker
Hamilton, ON
Sept. 2012 - Dec. 2012, Sept. 2013 - Dec. 2013
 - Astronomy: Big Questions (AST 2B03)
 - Mediated student discussion, graded student presentations and assignments.
- McMaster University
Teaching Assistant - Neil McKay
Hamilton, ON
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
Burke Gaffney Observatory Tour Guide - David Lane
Halifax, NS
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
Teaching Assistant - Dr. David Turner
Halifax, NS
Jan. 2011 - Apr. 2011
 - Introduction to Astronomy (ASTR 1000).
 - Responsible for grading student assignments throughout the semester.
- Saint Mary's University
Teaching Assistant - Jodi Asbell-Clarke
Halifax, NS
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
McMaster University, Professor, Astronomy/Physics | wilson@physics.mcmaster.ca
(905) 525-9140 x27483 |
| • Dr. Luigi Gallo
Saint Mary's University, Professor, Astronomy/Physics | lgallo@ap.smu.ca
(902) 420-5637 |
| • Dr. Rituparna Kanungo
Saint Mary's University, Associate Professor, Astronomy/Physics | rkanungo@ap.smu.ca
(902) 420-5428 |
| • Andrew Valencik
Saint Mary's University, System Administrator, Computing Science | andrew@cs.smu.ca
(902) 420-5893 |
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