

Damien Robertson - Curriculum Vitae

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Profile

I am an enthusiastic and dedicated problem solver with a passion for science, technology, and learning. After attacking a problem, successful or not, I love sharing that knowledge. I enjoy working in a team to dig through and understand complex systems.

Skills

- Data
 - SQL, Spark, Kafka, Hadoop
- Data Visualisation
 - Tableau, Jupyter Notebooks, Mode Analytics
- Programming
 - Professional: Python, Ruby, Scala, Git VC on large codebases
 - Hobby: Rust, Haskell
- Analytics and Data as a Product
 - Machine Learning: Python, Spark
 - Ad hoc and Prototyping: Python, Jupyter Notebooks, R
- Scripting
 - Bash, grep, awk, sed [, *nix cli tools]

Experience

Shopify | Data Engineer. Ottawa, Ontario | Mar. 2017 - Present

- Shopify Core - Logistics Data
 - Championing data effort for merchant logistics.
 - Working with teams across numerous logistic area including inventory, orders and fulfillments:
 - * Providing exploratory data to help define project scope.
 - * Identifying key performance indicators for launching projects and building out data pipelines to deliver data.
 - * Advising on data model construction to ensure potential for advanced analytics as product matures.
- Risk Algorithms
 - Championed operational effort to delivery timely data for risk evaluation.
 - Maintained existing streaming data pipelines while developing new pipelines as required.

Affinio | Data Scientist. Ottawa, Ontario | Nov. 2016 - Mar. 2017

- Created and maintained data pipelines using Spark, Hadoop, and a mix of many languages
- Ensured integrity of extracted, transformed and delivered data.
- Researched and developed new methods to extract useful metrics and quantitative measures.

Shopify | Data Engineer. Ottawa, Ontario | May 2015 - Nov. 2016

- Finance and Risk Algorithms
 - Used machine learning to help minimise a number of financial risks.
 - Used predictive analysis to aid in adoption and success of financial services
 - Developed ETL pipelines specifically for finance and risk needs.

- Internal Data
 - Engineered pipelines to extract and transform operational data into modelled data following Kimball methodology for numerous internal business areas
 - Built new endpoints within Shopify to extract data for modelling efforts.
 - Created data visualisations and reports for business users.
 - Helped contribute to the evolution of Shopify’s pipeline framework by introducing streaming data solutions

ShapeCapture | Numerical Programmer. Hamilton, Ontario | Oct. 2014 - Feb. 2015 (Part Time)

- Worked with structure from motion (SfM) algorithms to reconstruct three dimensional shape of an object using multiple two dimensional images.
- Prototyping of custom feature matching algorithms using Python/C++ with the openCV library.

McMaster University | Researcher. Hamilton, Ontario | Sept. 2012 - Aug. 2014

- Developed Python programs utilising the scikit-image library to combine multi-wavelength, multi-instrument infrared, and radio observations of star forming regions in two and three dimensions.
- Created Python programs for astronomical structure identification in data sets.
- Setup, maintained, and queried SQL databases of pre-stellar cores.
- Utilised machine learning to cluster massive pre-stellar core candidate lists.
- Developed analysis criteria for evaluating source finding algorithm efficacy.

Tri-University Meson Facility (TRIUMF), TITAN | Researcher. Vancouver, British Columbia | May 2011 - Aug. 2011

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

Saint Mary’s University | Researcher. Halifax, Nova Scotia | May 2009 - Sept. 2012

- Utilised data reduction pipelines in Bash, C++ to process X-ray and UV observations of active galaxies.
- Created and maintained bulk data sets, mined data for exploration, and quantity correlation.
- Created Python program to correlate unevenly sampled time series.
- Published paper on time series analysis, worked based on undergraduate thesis.
- Created *N-body* C++ code to simulate the evolution of the solar system with and without the Jovian planets.

Education

McMaster University. Hamilton, Ontario

- M.Sc. Physics and Astronomy | Sept. 2012 - Aug. 2014

Saint Mary’s University. Halifax, Nova Scotia

- B.Sc. Honours, Astrophysics (Summa Cum Laude) | Sept. 2008 - May 2012

Algonquin College. Ottawa, Ontario

- Diploma - Business Marketing | Sept. 2004 - May 2006

Publications

Articles Published or Accepted in Refereed Journals

Robertson, D., Gallo, L.C., Zoghbi, A., Fabian, A.C. (2015) *Searching for Correlation in Simultaneous X-ray and UV Emission in the Narrow-line Seyfert 1 galaxy 1H 0707-495*. Monthly Notices of the Royal Astronomical Society, Submitted.

Pattle, K., Ward-Thompson, D., Kirk, J.M., White, G.J., Drabek-Maunder, E., Buckle, J., Beaulieu, S.F., Berry, D.S., Broekhoven-Fiene, H., Currie, M.J., Fich, M., Hatchell, J., Kirk, H., Jenness, T., Johnstone, D., Mottram, J.C., Nutter, D., Pineda, J.E., Quinn, C., Salji, C., Tisi, S., Walker-Smith, S., Di Francesco, J., Hogerheijde, M.R., Andre, P., Bastien, P., Bresnahan, D., Butner, H., Chen, M., Chrysostomou, A., Coude, S., Davis, C.J., Duarte-Cabral, A., Fiege, J., Friberg, P., Friesen, R., Fuller, G.A., Graves, S., Greaves, J., Gregson, J., Griffin, M.J., Holland, W., Joncas, G., Knee, L.B.G., Konyves, V., Mairs, S., Marsh, K., Matthews, B.C., Moriarty-Schieven, G., Rawlings, J., Richer, J., **Robertson, D.**, Rosolowsky, E., Rumble, D., Sadavoy, S., Spinoglio, L., Thomas, H., Tothill, N., Viti, S., Wouterloot, J., Yates, J., Zhu, M. (2015) *The JCMT Gould Belt Survey: First results from the SCUBA-2 observations of the Ophiuchus molecular cloud and a virial analysis of its prestellar core population*. arXiv, 1502.05858, Accepted.

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. (2015) *The Life and Times of Betelgeuse*. Hamilton Amateur Astronomers, public talk.

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, Ontario

- **William J. McCallion Planetarium** - Dr. Robert Cockcroft | Apr. 2013 - Oct. 2014
 - Public outreach.
 - Created original presentations, performed them for private and public audiences and a wide range of ages.
- **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.
- **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.
- **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, Nova Scotia

- **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.
- **Teaching Assistant** - Dr. David Turner | Jan. 2011 - Apr. 2011
 - Introduction to Astronomy (ASTR 1000).
 - Responsible for grading student assignments throughout the semester.
- **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

- Ontario Graduate Scholarship - 2014
- NSERC Canada Graduate Scholarships - 2013
- Ontario Graduate Scholarship - 2013
- Entrance Scholarship - McMaster University - 2012
- SMU, First Place - Eighth Annual SMU Undergraduate Mini-Symposium (Talk) - 2011
- TRIUMF Summer Research Award - Atlantic Region - 2011
- Canada Undergraduate Physics Conference, Second Place - Astrophysics Category (Talk) - 2010
- NSERC Undergraduate Student Research Award - 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
- SMU, First Place - Sixth Annual SMU Undergraduate Mini-Symposium - 2009
- Dean's List (SMU) - 2008 - 2011