Krzysztof Suberlak

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Interests	Astrostatistics and data mining. I study how quasar properties such as black hole mass, or accretion disk luminosity, correlate with damped random walk parametrization of their light curves.
Education	University of Washington, Seattle, WA 2013 – present PhD Candidate in Astronomy (expected graduation 2019) University of Oxford, UK 2008 – 2012 MPhys Physics
Computer skills	**Python** open data science stack (NumPy, SciPy, AstroPy, Pandas, Matplotlib, Scikit-learn, iPython, Jupyter-Lab, AstroML, etc.); Github (**version control**); **UNIX** based systems; **LSST science pipelines**; Database manipulation: **SQL**, Apache-Spark, AXS, Dask, LSD; Collaboration tools: **Jira**, **Confluence**, Docushare, **LaTeX**, Zenodo.

Selected Graduate Research

LSST Crowded Fields: DM Subsystem Science Team   2018
Comparing the results of LSST stack processing of DECAPS data to the state-of-the-art pipeline in areas of high stellar density
- Analyzed the processed images and source catalogs, identified figures of merit
- Made recommendations concerning photometric accuracy and astrometric precision (DMTN077 "LSST Fall 2017 Crowded Fields Testing")

LSST Prototype Data Access Center: DM Subsystem Science Team   2017
- Tested the functionality of PDAC
- Made recommendations for the DM-SST team, summarized in the report DMTR022 "Prototype Data Access Center: User Report"

eScience Data Science for Social Good   Jun 2015 – Aug 2015
Summer work at the University of Washington eScience Institute, with Dr. Ariel Rokem and Dr. Bryna Hazelton on a Gates Foundation project "Predictors of Permanent Housing for Homeless Families"
- Cleaned the heterogeneous datasets describing homeless shelters in King, Pierce and Snohomish counties
- Developed python code with hierarchical clustering to define families based on coincidence of entry times and IDs

Undergraduate Research

Nicolaus Copernicus Astronomical Center, Poland, Research Associate   Feb 2013 – Jul 2013
Research at the Polish Academy of Sciences with Dr. Agata Różańska
- Measured Active Galactic Nuclei spectra from the VIMOS Public Extragalactic Redshift Survey
- Improved classification scheme and data reduction software

University of Oxford, Research Studentship   Oct 2012 – Dec 2012
Research with Dr. Leigh Fletcher and Prof. Pat Irwin
- Analyzed the infrared data of Jupyter atmosphere from Cassini
- Verified the possible depth of measurement using ethane spectral lines

Nicolaus Copernicus Astronomical Center, Poland, Summer Internship   Jun 2012 – Aug 2012
Research at the Polish Academy of Sciences with Dr. Agata Różańska
- Analyzed Chandra x-ray data, performed spectroscopy and imaging of Sagittarius A*
- Investigated the spectroscopy of x-ray filaments, and examined the morphology of the region in various energy bands

University of Oxford, Masters Thesis   Jan 2012 – Apr 2012
Measuring Expansion of the Universe with Supernovae with Dr. Fraser Clarke and Dr. Mark Sullivan
- Observed, reduced, and analysed follow-up data on newly discovered supernovae using the Oxford Wetton telescope
- Measured the Hubble constant with the lightcurve fitting software

University College of London, Nuffield Fellowship   Jun 2011 – Aug 2011
Undergraduate Research at the Mullard Space Science Laboratory, UK, with Prof Andrew Coates and Dr. Adam Masters
  – Analyzed the location of Saturn's plasmapause using Cassini Plasma Spectrometer (CAPS) Electron Spectrometer (ELS) data

University of Oxford, AOPP Research Assistantship   Jun 2010 – Aug 2010
Summer research internship with Dr. Neil Bowles and Dr. Ian Thomas at the University of Oxford Oceanic and Planetary Physics sub-department
  – Performed laboratory measurements and data analysis supporting the Diviner instrument on the Lunar Reconnaissance Orbiter
  – Determined the grain size distribution of the lunar soil equivalent, to aid modelling of thermal emission of lunar regolith

Publications
  – **Suberlak, K.L.**, Ivezić, Ž., MacLeod, C.L., Graham, M., Branimir, S. "Solving the puzzle of discrepant quasar variability on monthly time-scales implied by SDSS and CRTS data sets." Monthly Notices of the Royal Astronomical Society, Volume 472, Issue 4, p.4870-4877 (2017)

Honors And Awards
  – Data Intensive Research in Astrophysics and Cosmology (DIRAC) at the University of Washington: DIRAC Institute Fellow (2016-present)
  – University of Washington eScience Institute Data Science for Social Good Fellow (2015-present)
  – Fellow of the Royal Astronomical Society (2008-present)

Professional Presentations
  – Poster: Astrophysical Frontiers in the Next Decade and Beyond: Planets, Galaxies, Black Holes, & the Transient Universe. Portland, OR. June 26, 2018
  – Poster: "Bayesian inference in forced photometry" at Northwest Astronomy Meeting, Bellinham, WA. Oct 29, 2016
  – Poster: "What to do with negative fluxes?" at the intermediate Palomar Transient Factory (iPTF) Summer School, California Institute of Technology. Pasadena, CA. July 18, 2016
  – Poster: "Solving the puzzle of discrepant quasar variability on monthly time-scales implied by SDSS and CRTS datasets." 227th American Astronomical Society Meeting. Kissimmee, FL. January 6, 2016.
  – Poster: "New Constraints on Quasar Variability based on 8,000 SDSS Stripe 82 Quasars with both SDSS and CRTS Lightcurve Data." 225th American Astronomical Society Meeting. Seattle, WA. January 6, 2015.

Workshops and Conferences
  – LSST 2017 Project and Community Workshop. Tucson, AZ. Aug 14-18, 2017
  – Detecting the Unexpected: Discovery in the Era of Astronomically Big Data. Space Telescope Science Institute, Baltimore, MD. Feb 27 - March 2, 2017
  – Summer School 2016 Astrostatistics & Data Mining. International Max Planck Research School for Astronomy & Cosmic Physics at the University of Heidelberg, Germany. Sept 12-16, 2016

Teaching Experience
  – ASTR150 The Planets: Teaching assistant for three quarters (Winter 2013, Summer 2014 for Dr Nicole Silvestri; Spring 2015 for Dr Toby Smith)
  – ASTR101 Introduction to Astronomy: Teaching assistant for eight quarters (Fall 2013, Fall 2015, Summer 2016, Autumn 2016 for Dr Ana Larson ; Spring 2014, Spring 2016 for Dr Chris Laws; Winter 2015, Winter 2016 for Dr Oliver Fraser)