Vlas Sokolov

Ph.D. candidate

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GitHub profile: vlas-sokolov

Stack Overflow: profile link

About me

I am an astrophysics PhD candidate in Munich, looking to apply my skills to challenging datasets. In my daily work, I am conducting academical research on large astronomical datasets, using modern Python data analysis tools and a deep understanding of statistical methods. In particular, I build data reduction pipelines, routinely perform regression analyses and model selection for imaging and spectroscopic data, and extensively use modern visualization tools to communicate the scientific results obtained.

Skills

Advanced (6+ years):
Scientific Python (numpy, scipy, pandas, matplotlib), UNIX-like OS

Intermediate (2+ years):
bash, git, scikit-learn, LaTeX

Familiar (up to 1 year):
C/C++, R, matlab, Open MPI

Languages

English (fluent); German, Chinese (intermediate); Ukranian, Russian (native)

Work Experience

2014–current Max Planck Institute for Extraterrestrial Physics — Germany
Postgraduate Researcher

- Conducted academic research and analysed astronomical observations of the early stages of massive star formation
- Applied clean coding practices while routinely building data reduction pipelines for large astronomical imaging and spectral datasets
- Actively contributed to open-source packages (pyspeckit, astropy, matplotlib)

2012–2014 National Tsing Hua University, Institute of Astronomy — Taiwan
Research Assistant

- Evaluated an evolutionary sequence of massive protostars
- Developed a Levenberg-Marquardt algorithm implementation (C)
- Teaching Assistant for PHYS 4330 (2013 Spring and Fall semesters)

Education

Sep 2014 – Jul 2018 (expected)	Ludwig-Maximilians-Universität München Ph.D. candidate in Astrophysics	Germany
Sep 2012 – Aug 2014	National Tsing Hua University M.Sc.; Institute of Astronomy	Taiwan
Sep 2008 – Jul 2012	National Chiao Tung University B.Sc.; Dept. of Electrophysics	Taiwan
Sep 2004 – Jun 2008	Kyiv Natural Science Lyceum	Ukraine

Self Study

2018; 10 weeks	Intro to Machine Learning	(Udacity)
2013; 4 weeks	Computing for Data Analysis	(Coursera)

Portfolio

- Grid-search optimization for initial values of gradient descent algorithm (Python; GitHub link)
- Bayesian inference and model selection package for large spectroscopic datasets (Python, nested sampling, Open MPI)
- Webscraper for an automated retrieval of Herschel infrared Galactic Plane Survey data (Python, selenium; GitHub link)
- Co-author on a multivariate clustering method for astrophysical applications (Python, in prep.)
- Co-author on a nonlinear regression package for astrophysical spectral lines (Python, in prep.)
- Alphabetical photo sorting by EXIF creation date (Python; on GitHub gist)

Academic Expertise

- Experience in independent academic research (list of publications)
- Talks at multiple international conferences
- Deep understanding of statistical methods and concepts
- Capacity for independent analysis and self-reliant problem-solving skills
- Keen interest in Bayesian parameter estimation and model comparison