Vlas Sokolov

Astrophysics Ph.D.

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vlas-sokolov.github.io

GitHub profile: vlas-sokolov

Stack Overflow: profile link

About me

As a Ph.D. candidate in astrophysics, I am conducting academical research and performing data analysis on large astronomical datasets, using modern Python data analysis tools and a deep understanding of statistical methods. In particular, I am building data reduction pipelines, routinely performing non-linear regression analysis and model selection for imaging and spectroscopic data, and extensively use various 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** Research Assistant
Conducting academic research and analysing astronomical observations of the early stages of massive star formation.

2012-2014 **National Tsing Hua University** Research Assistant

- Establishing an evolutionary sequence of massive protostars (Python)
- Wrote 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** Germany
Ph.D. candidate in Astrophysics

Sep 2012 – Aug 2014 **National Tsing Hua University** Taiwan
M.Sc.; Institute of Astronomy

Sep 2008 – Jul 2012 **National Chiao Tung University** Taiwan
B.Sc.; Dept. of Electrophysics

Sep 2004 – Jun 2008 **Kyiv Natural Science Lyceum** Ukraine

Relevant Online Courses

2018-; ∼3 months	Deep Learning	(Udacity, ongoing)
2018; 10 weeks	Intro to Machine Learning	(Udacity)
2013; 4 weeks	Computing for Data Analysis	(Coursera)

Technical Expertise

- Extensive hands-on experience in processing noisy imaging and spectral data
- Grid-search optimization for initial values of a gradient descent-like algorithm (Python; GitHub link)
- Bayesian inference and model selection package for large spectroscopic datasets (Python, nested sampling, Open MPI; GitHub link)
- 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.)
- Active use of git-, Slack-, and jupiter workflows; Linux user for over a decade
- 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