Weitian LI

Data Analyst @ Shenzhen

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PhD (candidate), Physics Shanghai Jiao Tong University (SJTU)

Shanghai Shaoyang, Hunan September 26, 1991

Highly-motivated PhD candidate in Physics with good foundations of math and statistics, and familiar with the basics of data analysis, machine learning, as well as signal and image processing. Enthusiastic about computer technologies with 10 years experience in Linux and BSD, and involved in several open source projects (e.g., DragonFly BSD). Skilled in programming (Python, R, etc.) and data analysis, and looking to fill a position as a Data Analyst at your company that I can grow with as I achieve company goals.

Competences

Operating Systems	Linux (10 years), BSD (DragonFly BSD, FreeBSD; 7 years)
Programming	Python, Shell, C; R, Julia
Data Analysis	R, pandas, scikit-learn; matplotlib, ggplot2; SQL (basic knowledge)
Tools	Regular expression; Jupyter notebook; SSH, Git, Make; Ansible
Web Development	Django, Tornado; jQuery, Bootstrap; JavaScript, HTML5
Typesetting	LaTeX, ConTeXt

Education

present – September 2013 | School of Physics and Astronomy, **Shanghai Jiao Tong University**
PhD (candidate; expected to graduate in early 2019) in Physics

June 2013 – September 2009 | Department of Physics and Astronomy, **Shanghai Jiao Tong University**
Bachelor's Degree in Applied Physics

Research Projects

present – January 2015 | **Simulation of Low-Frequency Radio Sky and Separation of Weak Astronomical Signals**
Key Program, National Natural Science Foundation of China

- Developed the low-frequency radio sky simulation software: `FG21sim`.
- Significantly improved the modeling of radio halos, and integrated the instrumental effects of radio interferometers into the simulation pipeline.
- Quantitatively evaluated the impacts of radio halos on the detection of reionization signals, and finished the journal paper.
- Collaborated in classifying the radio galaxies according to the morphologies using a deep Convolutional Neutral Network (CNN).
- Used algorithms such as wavelet to denoise and enhance X-ray astronomical images.
- Extracted both the spatial and spectral information of X-ray images, and used the Support Vector Machine (SVM) to identify the potential point sources.

Python | Machine learning | CNN | SVM | Image processing

December 2014 – July 2012 | **The X-ray Study of Galaxies and Clusters of Galaxies, and the Research of Cosmic Low-Frequency Radio Radiation**
Fund for Distinguished Young Scholars, National Natural Science Foundation of China

- Reduced the data of over 200 galaxy clusters observed by the *Chandra* X-ray Observatory, and analyzed the images and spectra.
- Built a sample of galaxy clusters, collected optical data from SDSS, and investigated the correlation between the central emission excess and the central dominating galaxy.
- Developed and maintained a suite of data analysis utilities: `chandra-acis-analysis`.

Data collection | Data reduction | Statistical analysis | Python | Shell

Experience

April 2018 | Attended "The 2nd China-Australia SKA Big Data Workshop."
- Implemented the data transmission functionality between the NGAS data storage system and the DALiuGE data processing system.
- Gained team collaboration experience and learned agile development methods.

Data transmission | Data storage | Agile development | Python

March 2018 | Became a DragonFly BSD committer.

BSD | Open source

February 2018 | Revised "The Chinese SKA Science White Book" by rewriting the "Low-Frequency Observation Instruments" section.

September 2017 | Involved in writing the "Large-scale Diffuse Foreground Sources" section for "The Chinese SKA Science White Book."

August 2017 – April 2017 | Lung CT scan images analysis
- Collaborated with *Shanghai Chest Hospital*, attempted to identify the mutation types of lung tumors by analyzing the CT scan images, in order to formulate a better treatment plan.
- Extracted the image features using the Gray Level Concurrence Matrix (GLCM) and reduced with Principle Component Analysis (PCA), but found that the information provided by the CT images was insufficient to reliably predict the mutation types.

Feature extraction | Data reduction | PCA

September 2016 | Participated "The 13th China Post-Graduate Mathematical Contest in Modeling."
- Learned the Genome-Wide Association Study (GWAS) method to locate the most likely Single-Nucleotide Polymorphisms (SNPs) associated with a trait or disease.
- Used the R programming language to perform Logistic regressions and hypothesis testings between SNPs and traits, and identified the most possible SNPs and genes that may cause the disease.

R | Data cleaning | Regression analysis | Hypothesis testing

July 2014 – April 2014 | Organized "The 1st China–New Zealand Joint SKA Summer School."
- Designed and made the poster.
- Designed and developed the website, providing functionalities including user registration, agenda management, announcements, lecture downloads, etc.

Design | Django | Bootstrap | jQuery | JavaScript | MySQL

September 2013 – July 2013 | Summer intern @ 97 Suifang (startup company)
- Developed the website to help patients with *hepatitis B* track various indicators in their analysis reports.
- Implemented the user registration, data storage and search functions in the back end.
- Used AJAX in the front end to visualize the temporal variations of the indicators.

Database | Data visualization | Django | AJAX

Languages

English | **Reading** — Intermediate (read textbooks and literature)
Writing — Intermediate (write journal papers)
Listening & Speaking — Conversant

Chinese | **Writing** — Good (involved in writing Fund Applications, annual reports, as well as writing and revising sections for "The Chinese SKA Science White Book")
Speaking — Good (5 semesters of teaching assistant experience)

Awards & Certificates

September 2016 — Participation Award, The 13th China Post-Graduate Mathematical Contest in Modeling
July 2014 — Outstanding Teaching Assistant, College Physics
November 2013 — Outstanding PhD Student Entrance Scholarship of Shanghai Jiao Tong University
October 2012 — Advanced Individual of Shanghai Jiao Tong University
December 2011 — National Astronomical Observatory Scholarship
September 2011 — Network Engineer (Level 4), National Computer Rank Examination