



# Weitian LI

## Cloud Computing Development Engineer @ Shenzhen

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🎓 Ph.D. (candidate), Physics 🏛️ Shanghai Jiao Tong University (SJTU)

📍 Shanghai 🏠 Shaoyang, Hunan 🗓️ September 26, 1991

Highly-motivated Ph.D. candidate in Physics with good foundations of math and statistics. Enthusiastic about computer and network technologies, and proficient in Python, Shell, and various command line tools with 10 years experience in Linux and BSD. Have passion in open source and shared multiple projects on my [GitHub](#). Meanwhile a DragonFly BSD developer and involved in several other open source projects. Looking to fill a position as a **Cloud Computing Development Engineer** at your company that I can grow with as I achieve company goals.

## 🔑 Competences & Languages

<b>Operating Systems</b>	🐧 Linux (10 years), 🐧 BSD (DragonFly BSD, FreeBSD; 7 years)
<b>Programming</b>	Python, Shell, C; R, Julia
<b>Tools</b>	Ansible; SSH, tmux, Git, make; Regular expression
<b>Web Development</b>	Django, Tornado; jQuery, Bootstrap; JavaScript, HTML5
<b>Data Analysis</b>	R, pandas, scikit-learn; matplotlib, ggplot2; SQL (basic knowledge)
<b>🗣️ Languages</b>	<b>English</b> — reading & writing (intermediate); listening & speaking (conversant)

## 🎓 Education

present September 2013	School of Physics and Astronomy, <b>Shanghai Jiao Tong University</b> Ph.D. (candidate; expected to graduate in early 2019) in Physics
June 2013 September 2009	Department of Physics and Astronomy, <b>Shanghai Jiao Tong University</b> Bachelor's Degree in Applied Physics

## ⚙️ Research Projects

present January 2015	<p><b>Simulation of Low-Frequency Radio Sky and Separation of Weak Astronomical Signals</b> Key Program, National Natural Science Foundation of China</p> <ul style="list-style-type: none"> <li>➤ Collaborated in classifying the radio galaxies according to the morphologies using a deep Convolutional Neural Network (CNN).</li> <li>➤ Developed the <code>FG21sim</code> software to simulate low-frequency radio sky images.</li> <li>➤ Used algorithms such as wavelet to denoise and enhance X-ray astronomical images.</li> <li>➤ Extracted both the spatial and spectral information of X-ray images, and used the Support Vector Machine (SVM) to identify the potential point sources.</li> <li>➤ Significantly improved the modeling of radio halos, and integrated the instrumental effects of radio interferometers into the simulation pipeline.</li> </ul> <p>🔗 <code>Python</code> <code>High-performance computing</code> <code>Machine learning</code> <code>CNN</code> <code>SVM</code> <code>Image processing</code></p>
December 2014 July 2012	<p><b>The X-ray Study of Galaxies and Clusters of Galaxies, and the Research of Cosmic Low-Frequency Radio Radiation</b> Fund for Distinguished Young Scholars, National Natural Science Foundation of China</p> <ul style="list-style-type: none"> <li>➤ Reduced the data of over 200 galaxy clusters observed by the <i>Chandra</i> X-ray Observatory, and analyzed the images and spectra.</li> <li>➤ 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.</li> <li>➤ Developed and maintained a suite of data analysis utilities: <code>chandra-acis-analysis</code>.</li> </ul> <p>🔗 <code>Python</code> <code>Shell</code> <code>Data reduction</code> <code>Statistical analysis</code></p>

## 📄 Publications

- Li, W., Xu, H., Ma, Z., Hu, D., Zhu, Z., Shan, C., Wang, J., Gu, J., Lian, X. & Zheng, Q., "Radio Halos in Galaxy Clusters and Their Contributions to the Low-frequency Radio Sky," 2018, The Astrophysical Journal (submitted; SCI; IF=5.533)
- Ma, Z., Xu, H., Li, W., Shan, C., Hu, D., Zhu, Z., Lian, X., Zhang, Z., Liu, C. & Wu, X.-P., "A Machine Learning Based Morphological Classification of 14,251 Radio Galaxies Selected from the Best-Heckman's Sample," 2018, The Astrophysical Journal Supplement Series (submitted; SCI; IF=8.955)

- › Zheng, Q., Johnston-Hollitt, M., Duchesne, S. & Li, W., "Detection of a Double Relic in the Torpedo Cluster: SPT-CL J0245-5302," 2018, Monthly Notices of the Royal Astronomical Society (accepted; SCI; IF=4.961)
- › Hu, D., Xu, H., Kang, X., Li, W., Zhu, Z., Ma, Z., Shan, C., Zhang, Z., Gu, L., Liu, C. & Wu, X.-P., "A Study of the Merger History of the Galaxy Group HCG 62 Based on X-ray Observations and SPH Simulations," 2017, The Astrophysical Journal, (in revision; SCI; IF=5.533)
- › Ma, Z., Zhu, J., Li, W. & Xu, H., "An Approach to Detect Cavities in X-ray Astronomical Images Using Granular Convolutional Neural Networks," 2017, IEICE Transactions on Information and System, 100(10), 2578 (SCI; IF=0.41)
- › Zhang, C., Xu, H., Zhu, Z., Li, W., Hu, D., Wang, J., Gu, J., Gu, L., Zhang, Z., Liu, C., Zhu, J. & Wu, X.-P., "A Chandra Study of the Image Power Spectra of 41 Cool Core and Non-cool Core Galaxy Clusters," 2016, The Astrophysical Journal, 823, 116 (SCI; IF=5.533)
- › (and 3 more co-authored SCI papers)

## Experience

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|-----------------------------|---|
| April 2018                  | <p>Attended "The 2<sup>nd</sup> China-Australia SKA Big Data Workshop."</p> <ul style="list-style-type: none"> <li>› Implemented the data transmission functionality between the <b>NGAS</b> data storage system and the <b>DAL iuGE</b> data processing system.</li> <li>› Gained team collaboration experience and learned agile development methods.</li> </ul> <p> <span>Data transmission</span> <span>Data storage</span> <span>Agile development</span> <span>Python</span></p>   |
| March 2018                  | <p>Became a DragonFly BSD committer.</p> <p> <span>BSD</span> <span>Open source</span></p>   |
| December 2017               | <p>Participated in configuring and testing the high-performance computing cluster prototype for building the SKA Regional Science Center at Shanghai Astronomy Observatory.</p>   |
| present<br>April 2017       | <p>Use Ansible to manage a VPS running DragonFly BSD which serves personal email, authoritative DNS,, website, CalDAV/CardDAV, Git, etc.</p> <p> <span>BSD</span> <span>Ansible</span> <span>Postfix</span> <span>Dovecot</span> <span>DNS</span> <span>Nginx</span> <span>Firewall</span></p>   |
| December 2016               | <p>Built and administrated a 4-node computer cluster for the team to research the galaxy cluster merger processes by carrying out hydrodynamic simulations.</p> <p> <span>Linux</span> <span>NFS</span> <span>iptables</span> <span>Slurm</span> <span>Numerical simulation</span></p>   |
| September 2016              | <p>Participated "The 13<sup>th</sup> China Post-Graduate Mathematical Contest in Modeling."</p> <ul style="list-style-type: none"> <li>› Learned the Genome-Wide Association Study (GWAS) method to locate the most likely Single-Nucleotide Polymorphisms (SNPs) associated with a trait or disease.</li> <li>› 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.</li> </ul> <p> <span>R</span> <span>Data cleansing</span> <span>Regression analysis</span> <span>Hypothesis testing</span></p> |
| July 2014<br>April 2014     | <p>Organized "The 1<sup>st</sup> China–New Zealand Joint SKA Summer School."</p> <ul style="list-style-type: none"> <li>› Designed and made the poster.</li> <li>› Designed and developed the website, providing functionalities including user registration, agenda management, announcements, lecture downloads, etc.</li> </ul> <p> <span>Design</span> <span>Django</span> <span>Bootstrap</span> <span>jQuery</span> <span>JavaScript</span> <span>MySQL</span></p>   |
| September 2013<br>July 2013 | <p>Summer intern @ 97 Suifang (startup company)</p> <ul style="list-style-type: none"> <li>› Developed the website to help patients with <i>hepatitis B</i> track various indicators in their analysis reports.</li> <li>› Implemented the user registration, data storage and search functions in the back end.</li> <li>› Used AJAX in the front end to visualize the temporal variations of the indicators.</li> </ul> <p> <span>Database</span> <span>Data visualization</span> <span>Django</span> <span>AJAX</span></p>  |

## Awards & Certificates

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|----------------|--|
| September 2016 | Participation Award, The 13 <sup>th</sup> China Post-Graduate Mathematical Contest in Modeling |
| July 2014      | Outstanding Teaching Assistant, College Physics  |
| November 2013  | Outstanding Ph.D. Student Entrance Scholarship of Shanghai Jiao Tong University                |
| December 2011  | National Astronomical Observatory Scholarship  |
| September 2011 | Network Engineer (Level 4), National Computer Rank Examination                                 |