Jeremy S. Ritter, Ph.D.

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Data Scientist | Software Engineer | Astrophysicist

Austin, Texas 78728

Web: https://grapenut.github.io LinkedIn: https://bit.ly/jr_linked GitHub: https://github.com/grapenut

Skills

- Mastered senior-level programming with C/C++, Fortran, Java, and Python (10+ years).
- Implemented innovative solutions to unsolved problems as an independent researcher (6+years).
- Experienced with Python SciPy (Numpy, Pandas, Scikit-learn, Matplotlib), deep learning frameworks (Keras, TensorFlow), and specialty tools for computer vision (OpenCV) and natural language (NLTK).
- Administrated Linux servers on the cloud (e.g. AWS), including advanced Bash scripting (15+ years).
- Developed web-based projects using HTML, CSS, JavaScript, and SQL (15+ years).

Experience

Graduate Research Assistant **August 2012 – August 2018**
Undergraduate Research Assistant **May 2010 – August 2012**
The University of Texas at Austin

- Managed the entire research project lifecycle from idea inception, writing proposals, identifying and achieving production milestones, and publishing the final product in a high-impact scientific journal.
- Designed HPC simulations that evolved physical models on 250+ million particles and grid cells.
- Optimized parallel algorithms and data handling across 2000+ computing processes using MPI/OpenMP and GPU-accelerated linear algebra libraries (MKL/BLAS).
- Extracted data samples from 30+ TB distributed datasets and converted between proprietary formats.
- Modeled clustering of synthetic data using unsupervised learning techniques such as friends-of-friends, k-nearest neighbors, and kernel density estimation.
- Analyzed spatially correlated data features using parametric function fitting and linear regression.
- Created data visualizations that appeared in 4 scientific journal publications with 150+ citations, and for the August 2014 issue of *Science Magazine (Vol. 345, Issue 6199)*.
- Invited to speak to a group of financial investors about the scientific benefits of their donations at the February 2015 Astronomy Board of Visitors Meeting.
- Mentored research collaborators and associates in parallel programming best practices and the application of advanced numerical techniques to their unique datasets.
- Instructed students how to design and build robotically controlled remote sensing spectrographs, including machining, electronics, and programming for the Astronomical Instrumentation lab.
- Rewrote lab course curriculum to replace $3000 proprietary hardware and software with off-the-shelf digital electronics and microcontrollers programmed using free software on a $100 per team budget.

Freelance Data Scientist **May 2018**
Personal property taxes

- Generated dataset by XML parsing hundreds of public records scraped from the appraisal district website using automated HTTP search of nearby properties.
- Clustered properties with similar land values, square footage, and physical locations to determine the mean and variance of property values for properties similar to mine.
- Regressed expected property values to prove that my tax burden was 7% above both the neighborhood mean and cluster expectations.

Network Operations Engineer and Administrator **June 2002 – August 2014**
CoreNAP/Zayo Group, Colo4Dallas, Independent contractor

Education

Doctor of Philosophy in Astrophysics **August 2018**
The University of Texas at Austin

Dual Bachelor of Science in Physics and Astronomy **December 2011**
The University of Texas at Austin