

Jeremy S. Ritter, Ph.D.

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Data Scientist | Software Engineer | Astrophysicist

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Website: <https://grapenut.github.io>

Google Scholar: https://bit.ly/jr_scholar

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).
- Experienced with Python SciPy (Numpy, Matplotlib, Pandas, Scikit-learn, 4+ years), deep learning tools (Keras, OpenCV, 6+ months), and fine-tuning model hyper parameters with cross-validation (2+ years).
- Administrated Linux servers on the cloud (e.g. AWS), specializing in networks and security (15+ years).
- Developed numerous web-based projects using HTML, CSS, JavaScript, PHP, and SQL (15+ years), as well as with modern JavaScript frameworks (Node.js, jQuery, AngularJS, React, 2+ 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 inception, writing proposals, identifying and achieving production milestones, and publishing the final product in a prestigious 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 routines (MKL).
- Analyzed particle clustering using friends-of-friends, k-nearest neighbors, and kernel density estimation.
- Extracted cluster samples distributed over 30+ TB datasets and reduced dimensionality to model the evolution of non-linear profiles through time.
- Wrote custom utilities to compress and convert data between proprietary text and binary formats.
- 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.

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

June 2007 – August 2014

CoreNAP / The Zayo Group

- Automated network and compute resource provisioning pipeline using advanced shell scripting.

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