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GitHub: https://github.com/markyashar/sf16_ids1/ (Data Science course materials)

December 16, 2016

Dear Hiring Managers,

I am writing to apply for scientific, data analysis, data science/engineer, scientific computing, and/or software development positions (including temporary, contract, postdoctoral, internship, or entry-level positions) with the Radio Astronomy Lab at UCB, including the advertised Junior Assistant Specialist postiton. I recently completed a temporary contractor Business Analyst position with Visa, Inc. (which included Python code analysis work) and also completed a 6-week data science class (which included extensive use of Python) in October. Previous to that I was a Postdoctoral Scholar-Employee in the Department of Earth and Planetary Science (EPS) at the University of California, Berkeley (UCB) engaging in meteorological and regional atmospheric CO2 modeling research under the supervision of Professor Inez Fung. Prior to that, I held the position of Postdoctoral Research Associate at the Institute for Advanced Computing Applications and Technologies (IACAT) at the National Center for Supercomputing Applications (NCSA) at the University of Illinois Urbana-Champaign (UIUC), engaging in research and development on calibration and processing algorithms and computing for the Square Kilometer Array (SKA) next generation radio telescope project (http://www.skatelescope.org/) under the supervision of Dr. Athol Kemball. I completed my dissertation under the direction of Professor Andreas Albrecht at the University of California, Davis and received a PhD in physics in 2008-2009. I am interested in this or similar positions because such positions draw on my research background, computing skills and experience, and my experience with statistical algorithms and sampling techniques. I believe that my physics, astrophysics, atmospheric science, and computing research experience and coursework, combined with my employment background, have prepared me to make a contribution to and solve key problems among the exciting and impactful projects being carried out within the Radio Astronomy Lab at UCB. I also look forward to acquiring new computational, technical, and theoretical skills as necessary, and I am eager to work hard to help solve challenging and important problems in a timely manner and to add value to your team or related groups.

My research at UCB focused on mesoscale and regional atmospheric (forward or "bottom-up") modeling and analysis of anthropogenic and biogenic carbon dioxide tracer emissions, flux, and concentrations in northern California. This work has included extensive use of the Weather Research & Forecasting Model (WRF) and the WRF-Chem coupled weather-air quality model for atmospheric transport simulations. I also installed, compiled, built, and configured WRF and WRF-Chem on a NERSC multi-core supercomputing system and submitted batch job scripts to this system to run the WRF model simulations. This work has also involved the use of the R statistical scripting language, the NCAR Command Language (NCL), Matlab, Python, and Ferret for additional pre- and post-processing. My work on the

SKA project included research and development of calibration and processing algorithms and computing with a focus on cost and feasibility studies of radio imaging algorithms and issues relating to image fidelity, dynamic range, image statistics, and direction-dependent calibration errors. This work involved extensive use of Python and C++, the CASA and Meqtrees software packages, and the use and implementation of numerical and imaging simulations. My thesis work at U.C. Davis involved a Markov Chain Monte Carlo analysis of a dark energy scalar field model, employing the use of simulated data sets, including, for example, what might be expected from future LSST weak lensing surveys and future SDSS baryon acoustic oscillation surveys, as well as SKA surveys. This work was carried out with the extensive use of Matlab on a Linux computing cluster. I believe that these experiences, along with the technical and computing skills I gained as a Data Aide at the Stanford Linear Accelerator Center, as well as my experiences as a reader and teaching assistant at UC Davis and other research and course projects I have engaged in, as described in my curriculum vitae and on my LinkedIn profile, will enable me to become a valuable member of your team.

Please also see my CV/resume as well (detailing my computing and research experience and background) along with my LinkedIn and GitHub profiles for more details on my work background and experience, including examples of work products. Please also feel free to circulate these application materials among colleagues of yours who may find them of interest. Please let me know if I can provide you with any additional information to support my application.

Thank you for your consideration. I look forward to answering any questions your team might have and hearing from you soon.

Sincerely,

Mark Yashar