Aquasight November 28, 2016
1650 West Big Beaver Road, Suite 101
Troy, MI 48084

Dear Sir or Madam,

I am a PhD student in Geophysics at the University of Michigan, Ann Arbor, and I anticipate graduating in April 2017. Throughout my five years as a graduate student, I have developed skills and experience in data analysis that would make me a valuable asset to Aquasight. As requested in the position posting, I have a deep theoretical and practical understanding of supervised machine learning. I also have years of experience with Kalman filtering, which can be used to convert raw data streams into accurate, real-time intelligence. While I have the requisite experience, I am also eager to learn and keep up to date with the latest techniques in data analysis. I believe this passion for learning will make me well suited for the energetic start-up environment at Aquasight. Thank you for your consideration, and I look forward to your response.

Sincerely,

Trever T. Hines

Attached: Resumé

Trever T. Hines
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Trever T. Hines

Education

2012–present **PhD candidate Geophysics (certificate in Computational Engineering)**
University of Michigan, Ann Arbor, MI

2008-2012 **BS Geology**, *University of Illinois*, Urbana-Champaign, IL

Doctoral Dissertation

Title Transient deformation in tectonically active regions and implications for viscoelasticity in the crust and upper mantle

Advisor Eric Hetland

Description
- Developed algorithms to detect spatially and temporally coherent features in large geodetic data sets
- Introduced novel techniques to infer the geophysical processes causing observable ground deformation

Teaching Experience

2014–2016 **Graduate student instructor**, *University of Michigan*
- Instructed labs for a graduate level course on data analysis and inverse theory
- Topics included statistical hypothesis testing, Bayesian inference, regression, cluster analysis, and Kalman filtering

2015 **Michigan Math and Science Scholars instructor**, *University of Michigan*
- Co-taught a summer course for high school students on the mathematics of natural hazards

Proficiencies

Analysis
- Supervised machine learning with stochastic processes and radial basis functions
- Kalman filtering for real-time data integration
- Linear and nonlinear optimization techniques
- Numerical methods for solving partial differential equations

Programming Python, Cython, MATLAB, R, Bash, LaTeX

Recent Publications

in progress Hines, T. T., and E. A. Hetland. Revealing transient strain in geodetic data with the radial basis function finite difference method

2016 Hines, T. T., and E. A. Hetland. Rheologic constraints on the upper mantle from five years of postseismic deformation following the El Mayor-Cucapah earthquake. *J. Geophys. Res.*, 121, doi: 10.1002/2016JB013114

2016 Hines, T. T., and E. A. Hetland. Rapid and simultaneous estimation of fault slip and heterogeneous lithospheric viscosity from post-seismic deformation. *Geophys. J. Int.*, 204, doi: 10.1093/gji/ggv477

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