

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

Teaching Experience

- 2014–2016 **Graduate student instructor**, *University of Michigan*
 - o Instructed labs for a graduate level course on data analysis and inverse theory
 - o Topics included statistical hypothesis testing, Bayesian inference, regression, cluster analysis, and Kalman filtering
- 2015 **Michigan Math and Science Scholars instructor**, *University of Michigan*
 - o Co-taught a summer course for high school students on the mathematics of natural hazards

Proficiencies

- Analysis
 - o Supervised machine learning with stochastic processes and radial basis functions
 - o Kalman filtering for real-time data integration
 - o Linear and nonlinear optimization techniques
 - o 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-Cuapah 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