http://schultz.physics.ucdavis.edu **Kasey W. Schultz** kwschultz@ucdavis.edu

https://github.com/kwschultz

Education

University of California, Davis 2012 → Present
M.S. in Physics — Dec 2013
Ph.D in Physics — 2016, expected

University of Miami, Coral Gables, FL 2008 → 2012
B.S. in Physics, Applied Mathematics. *Cum Laude*

Research

Department of Physics, **University of California, Davis**
Graduate Student Researcher June 2013 → Present
Advisor: Prof. John Rundle

- Lead programmer and technical lead on the NASA-funded Virtual Quake project, a high performance earthquake simulator used for seismic hazard assessment
- Developing computational infrastructure for generating catalogs of observable seismic surface patterns as well as earthquake and tsunami scenario catalogs
- Developing and implementing computational tools for simulation data analysis, diagnostic tools and visualization

Department of Astronomy, **California Institute of Technology**, Pasadena, CA
Summer Undergraduate Research Fellow Summer 2011
Advisor: Dr. Brendan Crill, NASA JPL

- Updated and expanded the data analysis pipeline for the Planck collaboration
- Identified correlations between detector model parameters using the D.O.E.'s supercomputing center NERSC

Department of Physics, **University of Miami**
Research Assistant 2009 → 2012
Advisor: Prof. Kevin Huffenberger

- Reconstructed the optical properties of a Cosmic Microwave Background telescope (WMAP) from observational data; identified a selection bias in the WMAP point source catalog

Published Research

K. W. Schultz, M. K. Sachs, E. M. Heien, M. R. Yoder, J. B. Rundle, D. L. Turcotte, and A. Donnellan, *Virtual Quake: Statistics, Co-Seismic Deformations and Gravity Changes for Driven Earthquake Fault Systems*, International Association of Geodesy Symposia, **in press** (2015), DOI: 10.1007/1345_2015_134

M. R. Yoder, **K. W. Schultz**, E. M. Heien, J. B. Rundle, D. L. Turcotte, J. W. Parker and A. Donnellan. *The Virtual Quake earthquake simulator: A simulation based forecast of the El Mayor-Cucapah region and evidence of earthquake predictability*, Geophysical Journal International, 2015 203 (3): 1587-1604, DOI: 10.1093/gji/ggv320

M. R. Yoder, **K. W. Schultz**, E. M. Heien, J. B. Rundle, D. L. Turcotte, J. W. Parker and A. Donnellan. *Forecasting earthquakes with the Virtual Quake simulator: Regional and fault-partitioned catalogs*, International Association of Geodesy Symposia, **under review** (2015)

K.W. Schultz, M.K. Sachs, J.B. Rundle, D.L. Turcotte, *Simulating Gravity Changes in Topologically Realistic Driven Earthquake Fault Systems*, Pure and Applied Geophysics
DOI: 10.1007/s00024-014-0926-4, ***in press*** (2014)

K. W. Schultz and K. M. Huffenberger, *Stacking catalogue sources in WMAP data.* Monthly Notices of the Royal Astronomical Society, Volume 424, Issue 4, pp. 3028-3036 (2012)

Conferences & Talks

K. W. Schultz, M. K. Sachs, E. M. Heien, M.R. Yoder, J. B. Rundle, D. L. Turcotte, A. Donnellan. **oral**: *Scenario Earthquake and Tsunami Simulations for a Pacific Rim GNSS Tsunami Early Warning System: First Results*
9th Meeting of the APEC Cooperation for Earthquake Simulation, **Chengdu, China**. 2015

K. W. Schultz, M. K. Sachs, E. M. Heien, M.R. Yoder, J. B. Rundle, D. L. Turcotte, A. Donnellan. **poster**: *Virtual Quake: The Software Formerly Known as Virtual California*
Seismological Society of America (SSA) Meeting 2015, Pasadena, CA. 2015

K. W. Schultz, M. K. Sachs, E. M. Heien, J. B. Rundle, J. Fernandez, D. L. Turcotte, A. Donnellan. **talk**: *Virtual Quake: Earthquake Statistics, Surface Deformation Patterns, Surface Gravity Changes and InSAR Interferograms for Arbitrary Fault Geometries* **(won an OSPA award)**, American Geophysical Union (AGU) Fall Meeting 2014, San Francisco, CA, 2014

K. W. Schultz, J. B. Rundle, M. K. Sachs, K. F. Tiampo, T. J. Hayes, J. Fernandez, D. L. Turcotte, A. Donnellan. **talk**: *Monitoring Major Fault Systems from Space: Modeling Implications for Dedicated Gravity Missions.* GENAH Conference. **Matsushima, Japan**. 2014

Multi-Hazards Summer School: 1 week workshop on disaster prediction, preparedness, and response hosted by IRIDeS at Tohoku University and by the Association of Pacific Rim Universities (APRU). **Sendai, Japan**. 2014

Teaching & Tutoring

Teaching Assistant, Department of Physics, **University of California, Davis** 2012 → 2013

Physics & Math tutor, Department of Biology, **Barry University**, Miami Shores, FL 2012

Physics tutor, Department of Physics, **University of Miami** 2011 → 2012

Honors & Awards

UC Davis Graduate Student Travel Award ($1000) 2015

Winner of an Outstanding Student Paper Award in Natural Hazards 2014
Awarded to top 3-5% of presenters in each section at the American Geophysical Union 2014 meeting

Member, Omicron Delta Kappa 2011
One of the highest collegiate honors along with Phi Kappa Phi and Phi Beta Kappa

Isaac Bashevis Singer Scholarship 2008 → 2012
Full academic scholarship to the University of Miami (UM), 30 annually.

Foote Fellow 2008 → 2012
Highest academic honor at UM, fellows freely design their curriculum, 50 annually

NSF CSMS Scholarship 2010
NSF Computer Science and Mathematics for Scientists, 5 annually at UM

Beyond the Book Scholarship 2010
Supported summer research, UM College of Arts and Sciences, 12 annually

National Ocean Scholarship 2008 → 2010
Awarded by the Consortium for Ocean Leadership, 4 in the U.S. annually

Computing Skills

Languages: Python, C++, R, LaTeX, Bash. Experience with: SQL, HTML, SWIG, Java

Modules & Libraries: GitHub source control, Matplotlib, Numpy, Scipy

Study Abroad

Summer 2009: ACC Summer Study Abroad in China and Vietnam.
Studied environmental science, policy, and toxicology at:

- **South China Agricultural University**, Guangzhou, China.
- **Yunnan University**, Kunming, China.
- **Hanoi University of Mining and Geology**, Hanoi, Vietnam.