T. Ben Thompson

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Education:

(In Progress) Ph.D. Earth and Planetary Science at Harvard (August 2013 – now)
Faculty Advisor: Brendan Meade
Committee: James Rice, John Shaw

B.S. Earth, Atmospheric and Planetary Sciences at MIT (2013)
GPA: 4.8/5.0 Science/Math: 4.9/5.0 Within Major: 5.0/5.0

Research Experience:

Computational Geosciences Research (August 2013 – now)

- Modeling of earthquake cycle and tectonic processes using innovative boundary element methods.

High Performance Computing Research at Oak Ridge National Lab (Sept 2015 – Nov 2015)

- Developed a library, Taskloaf, that runs complex parallel computations over a distributed system by describing them as a graph of tasks.

Field and Research Assistant w/ Prof. Jagoutz (Feb 2012 – May 2013)

- Undergraduate thesis based on field investigations of active faults: “Active deformation of the Shargyn Basin, a transpressional strike-slip intersection in western Mongolia.”

Image Processing Research Assistant w/ Prof. Evans (Jun 2011 – Jan 2012)

- Helped design software to track micro-scale rock deformation.

Publications:

Thompson, T. B., J. H. Shaw, A. Plesch and B. J. Meade (2015), Rapid slip-deficit rates at the eastern margin of the Tibetan Plateau prior to the 2008 Mw 7.9 Wenchuan earthquake, Geophysical Research Letters.

DeVries, P. M. R., T. B. Thompson, B. J. Meade (2017), Enabling large-scale viscoelastic calculations via neural network acceleration, Geophysical Research Letters 44 (6), 2662-2669

Press:

Shultz, D. (2015), New models explain unexpected magnitude of China’s Wenchuan quake, *Eos, 96*, doi:10.1029/2015EO034247. Published on 17 August 2015.

Conference Presentations:

Thompson, T. B., B.J. Meade, Rapid Shortening at the Eastern Margin of the Tibetan Plateau Prior to the 2008 Mw=7.9 Wenchuan Earthquake, AGU Fall Meeting 2014, T41C-4644

Thompson, T. B., B.J. Meade, Rapid Shortening at the Eastern Margin of the Tibetan Plateau Prior to the 2008 Mw=7.9 Wenchuan Earthquake, SCEC Annual Meeting 2014

Thompson, T. B., B.J. Meade, Rapid Shortening at the Eastern Margin of the Tibetan Plateau Prior to the 2008 Mw=7.9 Wenchuan Earthquake, CSGF Program Review 2015

Thompson, T. B., B. J. Meade, Boundary element analysis of active mountain building and stress heterogeneity proximal to the 2015 Nepal earthquake, AGU Fall Meeting 2015, S42C-07

Thompson, T. B., B. J. Meade, Next Generation Boundary Element Models for Earthquake Science, CSGF Program Review 2016

Thompson, T. B., B. J. Meade, Next Generation Boundary Element Models for Earthquake Science, SCEC Annual Meeting 2016

Thompson, T. B., B. J. Meade, Next Generation Boundary Element Models for Earthquake Science, AGU Fall Meeting 2016, DI21A-03

Thompson, T.B., B. J. Meade, Next generation boundary elements applied to earthquake models with topography and material contrasts, CIG Crustal Deformation Meeting 2017

Thompson, T. B., B. J. Meade, The Earth isn't flat: The (large) influence of topography on geodetic fault slip imaging, AGU Fall Meeting 2017, G43C-07

Invited Talks:
Boundary element analysis of active tectonics and earthquakes in the Longmen Shan and Himalaya: insights and computational methodology, Oak Ridge National Laboratory, 2015

Next generation boundary elements applied to earthquake models with topography and material contrasts, Computational Infrastructure for Geodynamics Crustal Deformation Meeting, 2017

Teaching Experience:
Teaching fellow for SPU 12: Natural Disasters, Harvard College (Spring 2017)
Geologic field instructor for a Christa McAuliffe Regional Middle School trip (May 2013)
MIT Splash! Instructor for "Earthquakes!" (Nov 2012)
Teaching Assistant for MIT 12.001 Introduction to Geology (Spring 2012)

Field Experience:
Field season in western Mongolia studying both a Neoproterozoic ophiolite and the active faults of the region. (Jun-Aug 2012)
Participated in MIT Field Camp in the central Mojave, mapping a metamorphic complex (Jan 2012)

Awards:
Harvard Bok Center Certificate of Distinction in Teaching (Spring 2017)
Department of Energy CSGF Fellowship (2014 – 2018)
NSF Graduate Research Fellowship – declined (2014)
Harvard Peirce Fellowship (2013 - 2016)
MIT Earth Atmospheric and Planetary Science W.O Crosby Sustained Excellence Award (2013)
Siemens Competition semifinalist for Computer Vision research (2009)
Lemelson Foundation innovation scholarship (2008)
Association for the Advancement of Artificial Intelligence scholarship (2008)

Non-Academic Employment:

Software and Performance Development, QuantCo LLC (December 2017 – present)

Lead Software Developer, TherapyCharts L.L.C. (January 2009 – September 2011)

- Designed and performed initial construction on a web-based electronic health record management system for psychologists.
- Coordinated launch of TherapyCharts in August 2009, group practice management features in June 2010 and insurance billing features in September 2010.

Developer, iQGuys L.L.C. (June 2007 – January 2009)

- Designed and built a property management system, a time management system, and a number of other small websites using PHP, MySQL, PostgreSQL, Javascript, and Python.
- Using Java and Perl, developed new features for SearchIncite, a text data mining solution.