

Job Description – Job Duties:

The Postdoctoral Fellow will apply extensive experience in computational multiscale multiphase methodologies to develop high-strain-rate large-deformation continuum constitutive models of soils for simulations of shallow-depth explosive loading using the Material Point Method (MPM), which includes developing new methods for satisfying boundary conditions. The Fellow shall conduct extensive verification benchmarking, as well as validation testing against geotechnical centrifuge data. The Postdoctoral Fellow's role will be the development of parallelized C++ code to implement and test continuum (e.g. cam-clay) and discontinuum (fragmentation) material constitutive models that account for intrinsic variability of material properties and associated scale effects. In addition to the primary role of performing technical research, the Fellow will have a secondary role of leading project administration, which includes documentation, timeline/budget management, advising and assisting students, maintaining version control of all software and benchmark simulations, and developing project-related segments of courses in computational mechanics.

Minimum Requirements:

- Ph.D. degree in Mechanical Engineering, Geo-Physics, or related field;
- Demonstrated knowledge and research experience in the field of particle-based computational mechanics, preferably the Material Point Method.
- Demonstrated knowledge and research experience in continuum constitutive models of geological media, as well as methods to inform such models using hierarchical and/or concurrent multiscale methods.
- Previous contribution to the field through conference participation; and
- Peer reviewed publications

The successful candidate will work as a Postdoctoral Fellow in the Department of Mechanical Engineering at the University of Utah from June 1, 2011 to May 31, 2014 with annual compensation of \$40,000 contingent on departmental funding sources, and will be offered benefits on the same basis, and in accordance with the same criteria, offered to U.S. employees at the University of Utah.

Please send a CV, copies of three key publications, and names and contact information for three references as a single PDF file to: Rebecca.Brannon@utah.edu