

**Geotech faculty and students take advantage of the recreational opportunities in Colorado**



**Fall 2008 application deadline for priority consideration for financial support is January 15, 2008.**

**For more information and to apply, visit**

**[www.mines.edu/admiss/grad/](http://www.mines.edu/admiss/grad/)  
(under civil engineering)**

**Colorado**  
School of Mines

**Graduate  
Studies in  
Geotechnical  
Engineering**



**Funding is available for  
doctoral degree and masters  
degree studies**

## INNOVATION

### Marte Gutierrez, James R. Paden Distinguished Professor, Ph.D.

(Beginning January 2008)

Ph: (303) 273-3674

E: marte.gutierrez@gmail.com

My research interest is in the development and application of



advanced computational, sensor and information technologies for geotechnical problems. Current research projects include micromechanical modeling of particulates, nanomechanical and multiscale modeling of geomaterials, remote sensing applications (LiDAR, digital photogrammetry and GPS) in geohazard evaluation,

and real-time monitoring of underground construction.

Web: [www.cee.vt.edu/people/gutierrez.html](http://www.cee.vt.edu/people/gutierrez.html)

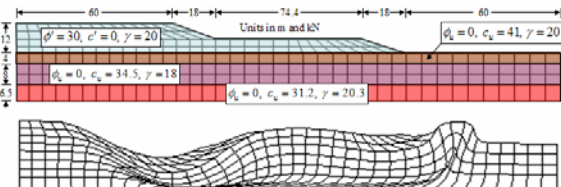
### Vaughan Griffiths, Professor, Ph.D., P.E.

Ph: (303) 273-3669

E: d.v.griffiths@mines.edu

I am interested in the application and development of finite element and other numerical methods to aspects of geotechnical engineering. Current projects include (i) development of probabilistic tools for geotechnical analysis, (ii) geomechanics of oil shale and heavy oil geomechanics (iii) finite element software development using computer algebra systems.

Web: [www.mines.edu/~vgriffit](http://www.mines.edu/~vgriffit)



## RESEARCH

### Ning Lu, Professor, Ph.D.

Ph: (303) 273-3654

E: ninglu@mines.edu

I have been working on engineering problems in underground nuclear waste isolation, solute transport in clayey soil, foundation damage by expansive clays, and, most recently,



precipitation-induced shallow landslides. My primary research interests are to seek common threads among soil physical phenomena including fluid, heat, and chemical flows, and stress and deformation, and to build bridges from atomic-scale potentials to particle-scale forces and engineering-scale stresses in soil.

Web: <http://egweb.mines.edu/faculty/NingLu.htm>

### Mike Mooney, Assoc. Professor, Ph.D., P.E.

Ph: (303) 384-2498

E: mooney@mines.edu

My interests include pavement geotechnics, instrumentation, geotechnical monitoring, geoconstruction, & intelligent geosystems. I am currently exploring the assessment of soil properties via instrumented vibra-



tory and nonvibratory roller compactors, geostatistical modeling of large data sets collected with GPS-enabled equipment, and the development of intelligent compaction where a roller learns how to best compact and measure soil properties.

Web: <http://control.mines.edu/mooney>

## OPPORTUNITY

### Judy Wang, Assistant Professor, Ph.D.

My research interests involve numerically and experimentally modeling dynamic infrastructure systems. The goal is to more accurately quantify and simulate the intrinsic dissipative mechanisms in soil-structure interaction. Potential applications of this work include predicting the dynamic response of buried structural systems due to traffic loading, surface rock fall, or seismic loading; mitigation of vibration and eventual fatigue fracture of high-mast structural systems using geomaterials with higher intrinsic damping capabilities; and optimizing seismic retrofit systems. I also have a side research interest in the history and societal impact of civil engineering. Beyond civil engineering,



### Ray Zhang, Assoc. Professor, Ph.D., P.E.

Ph: (303) 273-3671

E: rzhang@mines.edu

My interests include continuum mechanics, stochastic processes and fields, structural/soil dynamics, vibration, earthquake and wind engineering, and advanced data processing and analysis for sensory systems, disaster assessment and mitigation, and structural/geotechnical nondestructive evaluation and health monitoring. My recent research involves quantifying earthquake-induced site amplification and soil non-linearity, liquefaction detection, and comprehensive understanding of earthquake ground motion recordings via Hilbert-Huang Transform data process and analysis.



Web: [egweb.mines.edu/faculty/RayZhang.htm](http://egweb.mines.edu/faculty/RayZhang.htm)