

**ARVIN FARID, Ph.D., P.E.**

Assistant Professor  
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**EDUCATION**

- 2/2001-8/2004      **PhD, Civil & Environmental Engineering**, Northeastern University, Boston, MA. USA,  
Major: Geotechnical & Geoenvironmental Engineering  
Dissertation Title: “DNAPL Detection Using Cross-Well Radar”
- 10/1993-12/1997      **M.Sc., Civil Engineering**, Shiraz (Pahlavi) University, Shiraz, IRAN  
Major: Geotechnical Engineering
- 10/1987-12/1991      **B.Sc., Civil Engineering (+30 credit hours from Electrical Engineering program)**, Shiraz (Pahlavi) University, Shiraz, IRAN

**EMPLOYMENT**

- 02/2008-Date      **Assistant Professor**, Civil Engineering Dept, Boise State University, Boise, ID
- 2004-02/2008      **Associate Research Scientist**, Gordon CenSSIS (The Gordon Center for Subsurface Sensing AND Imaging Systems), Northeastern University, Boston, MA  
**Laboratory Director**, Civil & Environmental Engineering Dept., Northeastern University, Boston, MA
- 2003-2004      **Teaching Assistant**, Civil & Environmental Engineering Dept., Northeastern University, Boston, MA
- 2001-2003      **Research Assistant**, Civil & Environmental Engineering Dept., Northeastern University (CenSSIS), Boston, MA
- 1998-2000      **Consultant**, Alborz Consultants Inc., Shiraz, IRAN

- 1997-2000     **Assistant Professor and Department Director (1999-2000)**, Civil Engineering Dept., Bushehr University, Bushehr, IRAN
- 1994-1997     **Vice President**, Denab (Construction and Surveying) Company, Shiraz, IRAN
- 1993-1994     **Over-sight Inspection**, Fars Department of Provincial Public Work, Shiraz, IRAN

### **HONORS AND AWARDS**

- April 2007, Honorary Member of Phi Beta Delta Honor Society for International Scholars, The Alpha NU Chapter
- March 2007, Appreciation Award for Outstanding Contribution as an Invited Speaker in the Phi Beta Delta Educational Seminar Series, Boston, MA
- February 2007, Granted US Permanent Residency (Green Card) through Outstanding Researcher/Professor Category
- September 2004, Appreciation Award for Outstanding Contribution as an Invited Speaker in *INRA* 2004 (Inland Northwest Research Alliance), Environmental & Subsurface Science Symposium.
- 1993, Outstanding Graduate, B.Sc. student Award, Department of Civil Engineering, Shiraz (Pahlavi) University, IRAN

### **RESEARCH GRANTS**

- 2011-2014     NEESR: Induced Partial Saturation (LPS) Through Transport and Reactivity for Liquefaction Mitigation, \$1,197,461 funded by NSF, NEESR (National Earthquake Engineering Research) Program (NEESR 1134940), Lead University: NEU, BSU PI
- 2009-2012     IDR: Remote and Directive Electromagnetic Stimulation of Transport Mechanisms to Enhance Soil Remediation: \$371,783 funded by NSF (National Science Foundation, IDR (Engineering Interdisciplinary Research: ELECT, PHOTONICS, & DEVICE TEC) Program (CBET-0928703), PI
- 2010-2012     Phase II: Evaluation of Concrete Sealer Products to Extend the Life of Concrete Pavements Used by ITD: \$100,000 ITD (Idaho Transportation Department), Co-PI

- 2010-2012 Measurement of Dust Motion under Electrical and Mechanical Perturbation: \$50,000 funded by NASA (National Aeronautics and Space Administration), ISGC (Idaho Space Grant Consortium), Co-PI
- 2008-2010 Phase I: Evaluation of Concrete Sealer Products to Extend the Life of Concrete Pavements Used by ITD: \$94,000 ITD (Idaho Transportation Department), Co-PI
- 2006-2008 RapSochs (Rapid Soil Characterization System): \$780,000 SBIR Phase II Project funded by US Army Corps of Engineers to TransTech Systems (NEU Subcontract via TransTech Systems, Inc.)

## **TEACHING EXPERIENCE**

### **Boise State University (02/2008 to date):**

#### ***Courses:***

- Fall 2010: CE 497/597, Deep Foundations,  
CE 360, Engineering Properties of Soils (Soils Mechanics),
- Spring 2009: CE 460/460G, Geotechnical Engineering Design,
- Fall 2009: CE 497/597, Computational Techniques for Civil Engineers,
- Spring 2009: CE 460/460G, Geotechnical Engineering Design
- Fall 2008: CE 210 and CE 210L, Engineering Surveying and Lab
- Summer 2008: CE 595, Reading and Conferences

### **Northeastern University (2003 to 02/2008):**

- Courses:*** Soil Mechanics, Surveying, Soil Mechanics Laboratory, Surveying Lab

### **Bushehr University (1997-2000):**

- Courses:*** Static, Dynamics, Strength of Materials, Numerical Methods, Soil Mechanics, Foundation Engineering

## **AFFILIATIONS**

- ASCE (American Society of Civil Engineers), Associate Member, USA

- ASCE-GI (Geotechnical Institute), USA
- ASCE, Southern Idaho Section, Boise, ID, USA
- IEEE (Institute of Electrical & Electronic Engineering)
- TRB (Transportation Research Board)
- USUCGER (United States University Council on Geotechnical Education and Research), Department Representative
- AGU (American Geophysical Union)
- EEG (Environmental Engineering Geophysics), USA
- The Gordon CenSSIS (The Gordon Center for Subsurface Sensing and Imaging Systems), Boston, MA

### **SERVICE ON PANELS & COMMITTEES**

- NSF (National Science Foundation), Gen-3 ERC (Third Generation Engineering Research Center) panel
- NSF (National Science Foundation), GEH (Geoenvironmental Engineering and Geohazard Mitigation) panel
- ASCE, Geoenvironmental Engineering Committee, Committee Member
- ASCE, Session Chair, ASCE GeoFlorida 2010 Conference (Geoenvironmental Processes for Soil Remediation and Hazard Mitigation)
- ASCE, Session Chair, ASCE GeoCongress 2008 Conference (Geophysics for Geoenvironment Session)
- GGEC 2010 (Global Geoenvironmental Engineering Challenges), The first US-India Workshop
- TRB (Transportation Research Board), AFS20, Committee on Soils and Rock Instrumentation, Committee Member
- TRB (Transportation Research Board), AFP40, Committee on Physicochemical and Biological Processes in Soils, Committee Member
- USUCGER (United States University Council on Geotechnical Education and Research), Department Representative
- TRB (Transportation Research Board), AFP30, Committee on Soil and Rock Properties, Committee Friend
- TRB (Transportation Research Board), AFS50, Committee on Modeling for Design, Construction, and Geosystems, Committee Friend

### **REVIEW FOR PIER REVIEWED JOURNALS**

- ASCE, Journal of Geotechnical and Geoenvironmental Engineering
- IEEE, Transaction of Geosciences and Remote Sensing
- TRB, Transportation Research Board
- ASTM, Geotechnical Testing Journal
- JEEG, Journal of Environmental Engineering Geophysics (JEEG)

## **OTHER ACCOMPLISHMENTS**

- Developing, and operating a new experimental setup within the Civil Engineering Department at Boise State University for simulation of EM stimulation for various geomechanisms and geo-applications, such as air sparging.
- Developing, and operating experimental setups within the Civil Engineering Department at Boise State University. The setups has the infrastructure for various underground sensing research experiments using electromagnetic waves (Cross-well radar), such as 3D tunnel detection, and air sparging monitoring and quantification; as well as the potential of use for 3D Cross-well tomography, 2D and 3D soil characterization using radar, and 3D compaction assessment by radar.
- Developing an experimental setup for quantifying air-sparging in soil for different Geotechnical and Geoenvironmental applications (e.g. liquefaction mitigation) Modify course material for Surveying course at Boise State University
- Developed, operated and maintained an experimental facility for CenSSIS. The facility has infrastructure for various underground sensing research experiments using electromagnetic waves (Cross-well radar), such as 3D Cross-well tomography; 2D and 3D soil characterization using radar; 3D compaction assessment by radar; 3D tunnel detection by radar, and air sparging quantification by radar
- Developed a Channel Transfer Functions (CTF) to remove sensor coloring and dependency, which is a must for comparison between theoretical and experimental or field electromagnetic measurements
- Developed an experimental setup for the SBIR project with TransTech, funded by US Army Corps of Engineering for rapid soil characterization. The setup is used for real size rapid soil characterization using an innovative penetrometer similar to CPT, DmDCP, etc., and use of other technologies such as electrical impedance spectroscopy and similar techniques to measure moisture, density, plasticity, etc.
- Developed new course material for Surveying course and laboratory at Northeastern University (to accommodate for change from Quarter to Semester system)
- Improved course material for Soil Mechanic course and laboratory at Northeastern University

## **PUBLICATIONS**

### **Book Chapters**

#### ***Published:***

Farid, A., Alshawabkeh, A. N., and Rappaport, C. M. (2011) *Electromagnetic Waves: Propagation in Complex Matter*, Intech, Rijeka, Croatia, Chapter 5, pp. 117-154, Edited by Ahmed A. Kishk

### **Journal Publications**

#### ***In Press or Under Review:***

Farid, A., Martinez, J. A., Alshawabkeh, A. N., and Rappaport, C. M. (2011) "Tunnel Detection Using Cross-Well Radar," *ASCE, Journal of Geotechnical and Geoenvironmental Engineering*, Revision Submitted

Patel, V. M., Loo, S. M., and Farid, A. (2011) "Monitoring Civil Infrastructure using Image Template Matching," *ASCE, Journal of Infrastructures Systems*, Revision Submitted

Sangrey, H., Azad, M., Farid, A., Browning, J., and Barney-Smith E. (2011) "EM Stimulation 1: Experimental stimulation of EM stimulation of Geomechanisms," *ASTM, Geotechnical Testing Journal*, Under Review

Azad, M., Sangrey, H., Farid, A., Browning, J., and Barney-Smith E. (2011) "EM Stimulation 1: Interactions between EM waves and Transport Mechanisms," *ASTM, Geotechnical Testing Journal*, Under Review

#### ***Published:***

Farid, A., Alshawabkeh, A. N., and Rappaport, C. M. (2009), "Cross-Well Radar I: Experimentation Simulation of Cross-Tomography and Validation," *ASCE, Journal of Geotechnical and Geoenvironmental Engineering*, Vol. 135, No. 9, pp. 1209-1218

Farid, A., Zhan, H., Alshawabkeh, A. N., and Rappaport, C. M. (2009), "Cross-Well radar II: Comparison and Experimental Validation of Modeling Channel Transfer Function (CTF)," *ASCE, Journal of Geotechnical and Geoenvironmental Engineering*, Vol. 135, No. 9, pp. 1219-1227

Zhan, H., Farid, A., Alshawabkeh, A. N., Raemer, H., and Rappaport, C. M. (2007), "Validated Half-Space Green's Function Formulation for Born Approximation for Cross-Well Radar Sensing of Contaminants," *IEEE, Transaction of Geoscience and Remote Sensing*, Vol. 45, No. 8, pp. 2423-2428, August.

Farid, A. and Habibagahi, G. (2007), "Coupled Seepage-Dissolution Finite Element Analysis through Formations Containing Soluble Materials," *ASCE, Journal of Engineering Mechanics*, Vol. 133, No. 6, June 2007, pp. 713-722, June.

Farid, A. M., Alshawabkeh, A. N., and Rappaport, C. M. (2006), "Calibration and Validation of a Laboratory Experimental Setup for CWR in Sand," *ASTM, Geotechnical Testing Journal*, Volume 29, Issue 2, pp. 158-167

### **Conference Proceedings**

Rocha, J., Faird, A., and Browning, J. (2011) "Effects of Electromagnetic Stimulation on Soils' Hydraulic Conductivity," *2011 Pan-AM CGS Geotechnical Conference*, Toronto, ON. Canada, October, Accepted.

Farid A., Sangrey, H., and Browning, J. (2011) "Electromagnetic Stimulation of Water for Geoenvironmental Applications," *ASCE, Proceedings of GeoFrontiers 2011*, Dallas, TX, February

Farid A., Sangrey, H., and Browning, J. (2010) "Electromagnetic Stimulation of Air Sparging for Geoenvironmental Applications," *ISMGE, Proceedings of 6<sup>th</sup> ICEG*, India, New Delhi, November

Farid A., Sangrey, H., and Browning, J. (2010) "An Experimental Setup for Electromagnetic Stimulation of Air Sparging," *ASCE, Proceedings of GeoFlorida 2010*, West Palm Beach, FL. March

Farid A. (2010) "Effect of Antennae Polarization Relative to Tunnel Orientation on Electromagnetic Wave Scattering due to Underground Tunnels," *IEEE, PIERS 2010*, Cambridge MA. July.

Farid, A., and Raza, Tabish (2009) "Effect of Antennae Polarization Relative to Tunnel Orientation on Electromagnetic Wave Scattering due to Underground Tunnels," *Proceedings of COMSOL 2009*, Boston, MA, October

- Cui, K., Vaisman, E., Farid, A., Martinez, J. A., and Rappaport C. M. (2008), "Detecting Tunnels and Monitoring Activities within Them Using Cross-Well Radar," *IEEE, Proceedings of Piers 2008*, Cambridge, MA
- Farid, A., Martinez, J. A., Alshawabkeh, A. N., Rappaport, C. M. (2008) "Tunnel Detection Using CWR," *ASCE, Proceedings of GeoCongress 2008, Characterization, Monitoring, and Modeling of GeoSystems, Subsurface Characterization and Monitoring of Geoenvironment*, pp. 284-291, New Orleans, LA, March
- Farid, A. Kurson, C, Alshawabkeh, A. N., and Rappaport C. M. (2007) "Minimally Invasive Microwave Measurement and Modeling of Dielectric and Physical Properties of Sandy Soils," *EEGS, Proceedings of SAGEEP 2007*, Denver, CO, April
- Farid, A., Alshawabkeh, A. N., and Rappaport C. M. (2007) "Detecting Soil Disturbance Using Cross-Well Radar," *EEGS, Proceedings of SAGEEP 2007*, Denver, CO, April
- Gamache, R., Rappaport C. M., and Farid, A. M. (2006) "A Comparison of FDFD and FEM Methods Applied to the Buried Mine Problem," *Proceedings of CM2006*, Boston, MA. October
- Zhan, H., Rappaport, C. M., Farid, A. M, and Miller, E. (2006), "A Lossy Half-space Greens Function Forward Model for Inversion of Geophysics Problems," *IEEE, Proceedings of Piers 2006*, Cambridge, MA
- Farid, A. M., Habibagahi, G. (2006), "Coupled Seepage-Dissolution Finite Element Analysis through Formations Containing Soluble Materials," *Proceedings of SECTAM XXIII, Southern Conference on Theoretical and Applied Mechanics*, UPRM, Puerto Rico
- Farid, A. M., Alshawabkeh, A. N., and Rappaport, C. M. (2005), "Travel Time Tomography Using Frequency Responses collected by CWR," *EEGS, Proceedings of SAGEEP 2005, EEG*, Electronic Proceedings, 12 pp., April
- Farid, A. M., Alshawabkeh, A. N., Zhan, H., and Rappaport, C. M. (2005), "Challenges and Validation of Cross Tomography Experimentation for Inverse Scattering Problems in Soil," *ASCE, Proceedings of Geo-Frontiers*, Austin, TX, Electronic Proceedings, January
- Zhan, H., Farid, A. M, Rappaport, C. M., and Alshawabkeh, A. N. (2005), "Born Approximation Forward Modeling of Inverse Scattering Through Soil," *ASCE, Proceedings of Geo-Frontiers*, Austin, Texas, Electronic Proceedings, January

Farid, A. M., Alshawabkeh, A. N., and Rappaport, C. M. (2003), "Modeling Borehole Dipole Antenna Patterns for Cross-Well Radar DNAPL Imaging," *ASCE, Proceedings of Soil-Rock Conference*, MIT, Boston, MA, Proceedings, pp. 261-267

Farid, A. M., Alshawabkeh, A. N., and Rappaport, C. M. (2003), "Experimental DNAPL Detection Using Cross-Well Radar," *EEGS, Proceedings of SAGEEP 2003, EEG*, San Antonio, TX, Electronic Proceedings

Farid, A. M., Alshawabkeh, A. N., and Rappaport, C. M. (2002), "DNAPL Detection Using Cross-Well Radar," *Environmental Geotechnics, 4th ICEG, Proceedings*, pp. 465-470

## **PRESENTATIONS**

### **Invited Speaker**

March (2007), "Subsurface sensing, a growing need," Award for Outstanding Contribution in the Phi Beta Delta Educational Seminar Series, Boston, MA

September (2004), "Experimental and Theoretical Assessment of Cross Well Radar for DNAPL Imaging," Award for Outstanding Contribution in Environmental & Subsurface Science Symposium, *INRA (Inland Northwest Research Alliance)*, Spokane, WA

October (2004), "Experimental and Theoretical Assessment of Cross Well Radar for DNAPL Imaging," *RICC 2004*, Northeastern University, Boston, MA

### **Internal Invited Presentations:**

April (2009), "Underground Tunnel Detection, Broadband Measurement and Challenges," *MSE Seminar*, Boise State University

October (2008), "Dissolution-Seepage Coupled Analysis through Formations Containing Soluble Materials," *Geosciences Seminar*, Boise State University

### **Oral Presentations**

- Rocha, J., Faird, A., and Browning, J. (2011) "Effects of Electromagnetic Stimulation on Soils' Hydraulic Conductivity," *2011 Pan-AM CGS Geotechnical Conference*, Toronto, ON, Canada, October, Accepted.
- Farid A., Sangrey, H., and Browning, J. (2011) "Electromagnetic Stimulation of Water for Geoenvironmental Applications," *ASCE, Proceedings of GeoFrontiers 2011*, Dallas, TX, February
- Farid A., Sangrey, H., Browning, J. (2010) "Electromagnetic stimulation of air sparging for Geoenvironmental applications," *ISSMGE, The 6th ICEG*, New Delhi, India, November.
- Farid A. (2010) "Effect of Antennae Polarization Relative to Tunnel Orientation on Electromagnetic Wave Scattering due to Underground Tunnels," *IEEE, PIERS 2010*, Cambridge MA, July.
- Farid A., Sangrey, H., and Browning, J. (2010) "Electromagnetic Stimulation of Air Sparging for Geoenvironmental Applications," *Proceedings of 6<sup>th</sup> ICEG*, India, November, Accepted
- Farid, A., and Raza, Tabish (2009) "Effect of Antennae Polarization Relative to Tunnel Orientation on Electromagnetic Wave Scattering due to Underground Tunnels," *COMSOL 2009*, Boston, MA, October
- Cui, K., Vaisman, E., Farid, A., Martinez, J. A., and Rappaport C. M. (2008), "Detecting Tunnels and Monitoring Activities within Them Using Cross-Well Radar," *IEEE, Pier 2008*, Cambridge, MA
- Farid, A., Martinez, J. A., Alshawabkeh, A. N., Rappaport, C. M. (2008) "Tunnel Detection Using CWR," *ASCE, Proceedings of GeoCongress 2008, Characterization, Monitoring, and Modeling of GeoSystems, Subsurface Characterization and Monitoring of Geoenvironment*, pp. 284-291, New Orleans, LA, March
- Farid, A. M., Habibagahi, G. (2006), "Coupled Seepage-Dissolution Finite Element Analysis through Formations Containing Soluble Materials," *SECTAM XXIII, Southern Conference on Theoretical and Applied Mechanics*, UPRM, Puerto Rico
- Farid, A. M., Alshawabkeh, A. N., and Rappaport, C. M. (2005), "Travel Time Tomography Using Frequency Responses collected by CWR," *SAGEEP 2005, EEG*

- Farid, A. M., Alshawabkeh, A. N., and Rappaport, C. M. (2005), "Challenges and Validation of Cross Tomography Experimentation for Inverse Scattering Problems in Soil," *ASCE Geo-Frontiers*, Austin, TX, January
- Farid, A. M., Alshawabkeh, A. N., and Rappaport, C. M. (2003), "Modeling Borehole Dipole Antenna Patterns for Cross-Well Radar DNAPL Imaging," *Soil-Rock Conference*, MIT, Boston, MA, Proceedings, pp. 261-267
- Farid, A. M., Alshawabkeh, A. N., and Rappaport, C. M. (2003), "Experimental DNAPL Detection Using Cross-Well Radar," *SAGEEP 2003, EEG*, San Antonio, TX. USA, Electronic Proceedings
- Farid, A. M., Alshawabkeh, A. N., and Rappaport, C. M. (2003), "Potential of Ultra Wideband Cross-Well Radar for DNAPL Detection," *NSF site visit*, CenSSIS, Northeastern University, Boston, MA, November
- Farid, A. M., Alshawabkeh, A. N., and Rappaport, C. M. (2002), "DNAPL Detection Using Cross-Well Radar," *Environmental Geotechnics, 4th ICEG*, Proceedings, pp. 465-470
- Farid, A. M., Alshawabkeh, A. N., and Rappaport, C. M. (1997) "Numerical Method for Seepage Analysis (Finite Element, Integrated Finite Difference and Finite Difference)," Shiraz University, Shiraz, IRAN

### **Poster Presentations**

- Raza, T., and Farid, A. (2009), "Tunnel Detection", *BSU*, Undergraduate Research Poster, Spring
- Taylor, L., Farid, A. M., Alshawabkeh, A. N., and Rappaport, C. M. (2007), "Cross-Borehole Radar for Tunnel Detection", *RICC*, CenSSIS, Northeastern University, April
- Kianirad, E., Farid, A. M., Gamache, R., and Alshawabkeh, A. N. (2006), "Rapid Soil Characterization Using an Innovative Dynamic Penetrometer", *RICC*, CenSSIS, Northeastern University, October (**Award Winning Poster**)

- Taylor, L., Farid, A. M., Alshawabkeh, A. N., and Rappaport, C. M. (2006), "Cross-Borehole Radar for Tunnel Detection", *RICC*, CenSSIS, Northeastern University, October
- Kurson, C., Farid, A. M., Alshawabkeh, A. N., and Rappaport, C. M. (2006), "Cross-Borehole Radar for Tunnel Detection", *NSF site visit*, CenSSIS, Northeastern University, April
- Kurson, C., Farid, A. M., Alshawabkeh, A. N., and Rappaport, C. M. (2006), "Soil Disturbance Detection Using Cross-Borehole Radar", *NSF site visit*, CenSSIS, Northeastern University, April
- Kurson, C., Farid, A. M., Alshawabkeh, A. N., and Rappaport, C. M. (2006), "Minimally Invasive Microwave Measurements and Modeling of Soil Dielectric and physical Properties", *NSF site visit*, CenSSIS, Northeastern University, April
- Zhan, H., Rappaport, C. M., Farid, A. M., Alshawabkeh, A. N., Miller, E. L., and Raemer, H., (2006), "Remote Sensing using Cross-Well Radar for Geophysics Problem", *NSF site visit*, CenSSIS, Northeastern University, April
- Kurison, C., Farid, A. M., Alshawabkeh, A. N., and Rappaport, C. M. (2005), "Minimally Invasive Microwave Measurement and Modeling of Soil's Dielectric and Physical Properties," *RICC 2005*, Oct.
- Zhan, H, Farid, A. M., Alshawabkeh, A. N., Rappaport, C. M., and Clay Kurison (2005), "Cross-well Radar Detection of Pollution Pools: Modeling, Inversion and Experimentation," *NSF site visit*, CenSSIS, Northeastern University, April
- Zhan, H, Farid, A. M., Alshawabkeh, A. N., Rappaport, C. M., and Sharifian, M. (2004), "Cross-well Radar Detection of Pollution Pools: Modeling, Inversion and Experimentation," *RICC 2004*, CenSSIS, Northeastern University, Oct.
- Zhan, H, Farid, A. M., Alshawabkeh, A. N., Rappaport, C. M., and Loo, D. (2004), "Cross-well Radar Detection of Pollution Pools: Modeling, Inversion and Experimentation," *NSF site visit*, CenSSIS, Northeastern University, April
- Zhan, H, Farid, A. M., Alshawabkeh, A. N., Rappaport, C. M., and Loo, D. (2003), "Cross-well Radar Detection of Pollution Pools: Modeling, Inversion and Experimentation," *RICC 2003*, CenSSIS, Northeastern University, Oct.

Zhan, H, Farid, A. M., Alshawabkeh, A. N., Rappaport, C. M., and Loo, D. (2003), "Cross-well Radar Detection of Pollution Pools: Modeling, Inversion and Experimentation," *NSF site visit*, CenSSIS, Northeastern University, April

Farid, A. M., Alshawabkeh, A. N., and Rappaport, C. M. (2002), "DNAPL Detection Using Cross-Well Radar," *RICC 2002*, CenSSIS, Northeastern University, Nov.

Farid, A. M., Alshawabkeh, A. N., and Rappaport, C. M. (2002), "DNAPL Detection Using Cross-Well Radar," *NSF site visit*, CenSSIS, Northeastern University, April

## **STUDENT SUPERVISION**

### **Member of PhD Committee and Co-advisor for:**

- Emily Hinz, PhD Candidate, Geophysics, Boise State Univ., 2009-2011
- Ehsan Kianirad, PhD Candidate, Civil & Environmental Eng., Northeastern Univ., 2006-2010
- Essra Ece Bayat\_Esselar, PhD Candidate, Civil & Environmental Eng., Northeastern Univ., 2005-2009

### **Masters Students**

- Atena Najafi, Civil Eng., Boise State Univ., 2012-2014
- Sahba Azad, Civil Eng., Boise State Univ., 2011-2013
- Daniel Zimmermann, Civil Eng., Boise State Univ., 2010-2012
- Mahsa Azad, Civil Eng., Boise State Univ., 2010-2012
- Harlan Sangrey, Civil Eng., Boise State Univ., 2008-2010
- Jonathan Rocha, Civil Eng., Boise State Univ., 2010-2011
- Vikram Patel, Electrical & Computer Eng., Boise State University, 2009-2011
- Josh Kiepert, Electrical & Computer Eng., Boise State University, 2008-2010
- Clay Kurson, Civil & Environmental Eng., Northeastern Univ., 2004-2006
- Mehdi Sharifian, Civil & Environmental Eng., Northeastern Univ., 2003-2005

### **Undergraduate Student Involvement in Research (e.g., REU: Research Experience for Undergrads)**

- Jessie Shocklee, Civil Engineering, Boise State Univ., 2012

- Kelly Jenkins, Mechanical & Biomedical Engineering, Boise State Univ., 2011
- Nawid Mousa, Civil Engineering, Boise State Univ., 2011
- Sara Kaster, Civil Engineering, Boise State Univ., 2010-2011
- Ashley Alexander, Civil Engineering, Boise State Univ., 2010
- Nilab Mousa, Civil Engineering, Boise State Univ., 2010
- JG McCall, Civil Engineering, Boise State Univ., 2010
- Kali Dickerson, Civil Engineering, Boise State Univ. (Summer Intern: Cooper Union College, NY), 2010
- Jonathan Rocha, Civil Engineering, Boise State Univ., 2010
- Corine Haase, Civil Engineering, Boise State Univ., 2009-2010
- Andrew Pharis, Construction Management, Boise State Univ., 2009
- Jennifer Selders, Civil Eng., Boise State Univ., 2009
- Tabish Raza, Second Degree (Geophysics), Boise State Univ., 2008-2009
- Esther Contreras, Civil Eng., Boise State Univ., 2008
- Kindra South, Civil Eng., Boise State Univ., 2008
- Paul Anderson, Civil Eng., Boise State Univ., 2008
- Emily Nelson, Electrical & Computer Eng., Northeastern Univ., 2008
- Emma Chory, Electrical & Computer Eng., Northeastern Univ., 2008
- Edward Vaisman, Electrical & Computer Eng., Northeastern Univ., 2007-08
- Karen Cui, Electrical & Computer Eng., Boston Univ., 2007
- Elena Mitchel, Electrical & Computer Eng., Alabama A&M Univ., 2007
- David Diaz, Civil & Environmental Eng., Northeastern Univ., 2007
- Christopher Willey, Civil & Environmental Eng., Northeastern Univ., 2007
- Eilish Corey, Civil & Environmental Eng., Northeastern Univ., 2006
- Andrea C. Narino, Civil & Environmental Eng., Northeastern Univ., 2006
- Lauren Taylor, Civil & Environmental Eng., Northeastern Univ., 2006
- Melissa Reeves, Electrical & Computer Eng., Northeastern Univ., 2006
- Jonathan Sarafinas, Electrical & Computer Eng., Northeastern Univ., 2005
- Tim Dyer, Electrical & Computer Eng., Northeastern Univ., 2005
- Dan Lobante, Electrical & Computer Eng., Northeastern Univ., 2005
- David Loo, Electrical & Computer Eng., Northeastern Univ., 2004
- William Price, Electrical & Computer Eng., Northeastern Univ., 2004
- Stanley Cantave, Electrical & Computer Eng., Northeastern Univ., 2003
- Mopolo Buessing, Civil & Environmental Eng., Northeastern Univ., 2003

**High School & Teachers and Students Involvement in Research (e.g., TRiO, RET, etc.)**

- Liam McCormick, Boise ID 2010
- Logan Jensen, Boise ID 2010
- Darling Gordia, Boise ID 2010
- Alberto Garad, Boise ID. 2010
- Casey Scott, Boise, ID 2009
- Zane Beckman, Boise, ID 2008-09
- Alex Harmon, Boise, ID 2008-09
- Woovin Yi, Boise, ID 2008
- Dillon Irminger, Boise, ID 2008
- Patt Hongsmatip, Boston, MA
- Feng Wu, Boston, MA

### **Area of Research**

#### ○ *Ongoing and Active Research Projects:*

- Remote and Directive Electromagnetic Stimulation of Transport Mechanisms to Enhance Soil Remediation, NSF (National Science Foundation, IDR (Engineering Interdisciplinary Research: ELECT, PHOTONICS, & DEVICE TEC) Program
- Induced Partial Saturation (IPS) through Transport and Reactivity for Liquefaction Mitigation (National Science Foundation, NEESR)
- Measurement of Dust Motion under Electrical and Mechanical Perturbation, NASA (National Aeronautics and Space Administration), ISGC (Idaho Space Grant Consortium)
- Nondestructive evaluation of concrete sealer application and concrete health monitoring
- Evaluation of Concrete Sealer Products to Extend the Life of Concrete Pavements Used by ITD, ITD (Idaho Transportation Department)
- Sensor Fusion for Rapid Soil Characterization, using an innovative dynamic penetrometer along with density and moisture content sensors, and technologies such as electrical impedance spectroscopy (Sponsored by US Army Corps of Engineering)
- Contaminant (e.g. DNAPL) detection using radar (Sponsored through Gordon CenSSIS, an ERC for subsurface sensing and imaging systems, sponsored by NSF)
- Quantifying air sparging application for Geotechnical and Geoenvironmental applications such as Liquefaction mitigation, etc. (Sponsored by NSF through a liquefaction mitigation research)

- Shallow Tunnel Detection (Potential sponsors: DOD and Department of Homeland Security)
- Seepage-Dissolution coupled analysis using Finite Element method (useful and applicable to contaminant transfer studies)
- *Other Geotechnical and Geoenvironmental Research Projects*
  - Landmine and UXO detection,
  - Real-time monitoring of contaminant fate and transport,
  - Soil characterization,