

Amir Soltani

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EDUCATION

- **Ph.D., Structural Engineering;**
University of Pittsburgh, Pittsburgh, Pennsylvania. 2007-2010
Dissertation title: *Bond and serviceability characterization of concrete reinforced with high strength steel*
- **Master of Science, Structural Dynamics and Earthquake Engineering;**
International Institute of Earthquake Engineering and Seismology, Tehran, Iran. 2000-2002
Thesis title: *Optimizing non-linear parameters of viscous dampers using active control algorithm*
- **Bachelor of Science, Civil Engineering;**
University of Tehran, Iran. 1995- 1999

PROFESSIONAL EXPERIENCE

- **Purdue University**
Visiting Professor; Mechanical/Civil Engineering Department. August 2011 – Present
Office: 219 989 2901 - Department Secretary contact number: 219 989 2472
-Teaching: Fall semester: Finite Element Methods, Structural Analysis, Concrete Design,
Spring Semester: Strength of Materials, Dynamics, Steel Design,.
-Research: A NSF Proposal is submitted (Proposal #1200959), A DOT proposal is under review,
NCHRP proposal is under review.
-Laboratory Instructor and Undergraduate projects supervisor: ANSYS LAB, Concrete Canoe Competition,
Steel Bridge Competition.
-Experienced with ABET accreditation process and documents preparation.
- **University of Pittsburgh**
Graduate Research Assistant; Primary researcher on NCHRP 12-77 project. August 2007 – July 2011
-Conducted extensive mechanical analysis on crack propagation and crack widths on composite materials.
-Conducted two large-scale stress/fatigue tests on reinforced concrete beam for large bridge spans.
-Evaluated *ACI* and *AASHTO LRFD Design Specifications* for high strength steel bars in concrete structures.
-Conducted 18 full scale hook development tests to study bonding stress between concrete and reinforcement.
-Assisted on the other aspects of testing for seismic concerns of bridge structures such as shear friction
behavior of concrete specimens reinforced with high-strength steel bars.
- **Namvaran Engineering and Management**
Structural Analysis and Design Engineer; Tehran, Iran July 2004 – December 2006
-Analyzed seismic soil-structure interaction (SSI) of massive foundation of the supporting structures for
cooling system in Ethylene Olefin Khark Project using ANSYS.
-Analyzed the stress distribution and evaluated the structural failure of high pressure pipes using finite
element methods.
-Modeled and designed supporting structure for pipelines and other facilities using SAP2000.
- **Research Center of Energy**
Seismic Engineer; Tehran, Iran September 2002 – July 2004
-Inspected the Powerhouses for hazard reduction and health monitoring and damage identification of
facilities and structures.
-Evaluated Stress/Fatigue of dynamic structures.
-Utilized applicable industry codes and standards of implant projects.
- **International Earthquake Engineering and Seismology**
Graduate Research Assistant; Tehran, Iran August 2000 – June 2002
-Performed Non-linear Time History analysis of 2D multi-story buildings to determine the seismic loads
on the seismic control systems.
-Optimized passive control systems in LQR algorithm to control the displacement and acceleration
of multi-story buildings excited by earthquake using MATLAB.
-Designed viscous dampers with optimized non-linear (Velocity/displacement dependent) characteristics.

AREA OF EXPERTISE

Major Areas of Interest:

- Application of full-scale structural testing
- Mechanical properties for fracture analysis
- Rehabilitation and retrofitting of structures

Minor Areas of Interests:

- Seismic analysis and design
- Seismic isolation and structural control
- Finite element methods

PUBLICATIONS

Refereed Journal Articles:

- Harries, K.A; **Soltani, A.** and Shahrooz, B.M., Miller, R., Russell, Sept 2011 “*Flexural Crack Widths in Concrete Girders Reinforced with High-Strength Reinforcement*”; ASCE, Journal of Bridge Engineering doi 10.1061/(ASCE)BE.1943-5592.0000306.
- **Soltani, A.** and Harries, K.A; Shahrooz, B.M., Miller, R., Russell, June 2011 “*Fatigue Performance of High Strength Reinforcing Steel*” ASCE, Journal of Bridge Engineering doi 10.1061/(ASCE)BE.1943-5592.0000281.
- Harries, K.A., Shahrooz, B.M., **Soltani, A.**, Miller, R., Russell, H.G.; 2010 “*Bond and Anchorage of High Strength Reinforcing Steel*”; Transportation Research Record: Journal of Transportation Research Board Vol. 2172/2010; pp 96-102.

International Conferences:

- Harries, K; Shahrooz, B.; **Soltani, A.**; Reis, J.; Wells, E.; Miller, R.; Russell, H. “*Bonding and Anchorage of High-Strength Reinforcing Steel*” Transportation Research Board; 89th Annual Meeting, January 10-14, 2010, Paper #10-1328.
- **Soltani, A.**; Ziyaeifar, M. “*Design of a Nonlinear Damping System for Seismic Response Control*” Earthquake Engineering Research Institute; Annual Meeting, Feb 2-6, 2010. (Awarded)
- **Soltani, A.** and Ziyaeifar M. 2006. *Determining of Dashpot Optimal Characteristics using Structural Control Algorithms*; First European Conference on Earthquake Engineering and Seismology, Geneva, Switzerland , 3rd -8th September, 2006. Paper No: 1329.
- **Soltani, A.** and Ziyaeifar M. 2007. *Design of Energy Dissipative Devices with Optimal Characteristics using Structural Control Algorithms*; National Center for Seismic Risk Reduction, Bucharest, Romania , April 26th – May 2nd , 2007. Paper ID: 77.

Technical Reports:

- NCHRP Project Number 12-77: *Structural Concrete Design with High-Strength Steel Reinforcement*, National Academy of Sciences.
- IIEES Report 2003: *Optimizing non-linear parameters of viscous dampers using active control algorithm*, International Institute of Earthquake Engineering and Seismology.

HONORS AND AWARDS

- **Abstract paper Award**, EERI Conference, San Francisco, February, 2010.
- **Scholarship**, University of Pittsburgh, Pittsburgh, August, 2007.
- Rank 49th in nationwide entrance university exam between 449,000 participants in 1995.

INTERNSHIPS

- **Pennsylvania Department of Transportation**
Structure/Bridge Analysis Intern; Bridgeville, PA May 2010 – Oct 2010
-Performed stress evaluation and capacity rating of existing bridges in Allegheny County.
- **SABIR Co.**
Civil Engineer Intern; Karoon III dam, Khozestan, Iran. June 1997 – Sept 1997

COMPUTER SKILLS

- **Engineering:**
ANSYS, ABAQUS, ADINA, Corel, STAAD, SAP, Engineering Data Set, Mathcad, Response2000.
- **Programming:** MATLAB, Visual Basic, Fortran, Macro in EXCEL