

CURRICULUM VITAE

Navid Attary

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POSITIONS HELD

- Post-Doctoral Research Scholar, Center of Excellence for Risk-Based Community Resilience Planning at Colorado State University, Fort Collins, CO *July 2015-Present*
- Lecturer, Full-Time Faculty of Department of Civil and Environmental Engineering, Rensselaer Polytechnic Institute (RPI), Troy, NY *Jan 2014-June 2015*

EDUCATION

- Rensselaer Polytechnic Institute (RPI), Troy, NY *Dec 2013*
Ph.D. in Civil Engineering, Structural Engineering *GPA: 3.85*
Dissertation: "Development and Application of Negative Stiffness Devices for Seismic Response Control of Highway Bridge Structures"
Advisor: Michael Symans, Committee: Satish Nagarajaiah (Rice U), David Rosowsky (RPI), Michael O'Rourke (RPI)
- University of Tehran, Tehran, Iran *May 2009*
M.Sc. in Civil Engineering, Earthquake Engineering *GPA: 3.4*
Thesis: "Analyzing Deep Vertical Concrete Shafts for Seismic Loads"
Advisor: Shahram Vahdani (UT)
- Iran University of Science and Technology (IUST), Tehran, Iran *March 2006*
B.Sc. in Civil Engineering *GPA: 3.05*

RESEARCH EXPERIENCE

Colorado State University, Fort Collins, CO *Summer 2015-Present*

- *Center of Excellence for Risk-Based Community Resilience Planning*; Funded by National Institute of Standards and Technology (NIST); Accelerate the development of system-level models and databases that will provide the technology for enhancing community resilience in a research and development program involving three major thrusts:
 - Developing a multidisciplinary computational environment with fully integrated supporting databases, known as NIST-CORE (NIST-COMmunity Resilience modeling Environment), that will enable the factors and their inter-relationships that determine community resilience to be fully understood
 - Producing a standardized data ontology, a robust data architecture, and effective data management tools to support the computational environment and to permit databases from stakeholders representing multiple domains of engineering and social sciences to be integrated seamlessly in the decision process
 - Validating the resilience data architecture through a series of testbeds that stress the process of data collection, its integration into the computational modeling environment, and decision algorithms

Rensselaer Polytechnic Institute (RPI), Troy, NY *Fall 2009- Fall 2013*

- Ph.D Research Project: *NEESR-SG: Development of Next Generation Adaptive Seismic Protection Systems*; Funded by NSF; PI and Co-PIs: Satish Nagarajaiah (Rice U), Andrei Reinhorn (UB), Michael Constantinou (UB), Michael Symans (RPI) and Jian Zhang (UCLA). Developing and Testing an Innovative Mechanical Adaptive Passive Seismic Protection Device, with Negative Stiffness Behavior
 - In Charge of Shake Table Testing (400 Tests) of Quarter-Scale Bridge Model with Negative Stiffness Devices, Viscous Dampers and Elastomeric Bearings with more than 100 Sensors at University at Buffalo and Performing All Related Tasks, Including: Feasibility Studies, Analysis, Design, Fabrication Drawings, Fabrication, Setting up Test Specimen and Data Acquisition System, Sensor Calibration, Recording and Processing Data.
 - In Charge of Displacement Controlled Cyclic Tests (42 Tests) of Negative Stiffness Devices inside a Load Frame at University at Buffalo

University of Tehran, Tehran, Iran *Fall 2006-Spring 2009*

- M.Sc. Research Project: "Analyzing Deep Vertical Concrete Shafts for Seismic Loads"
Includes: Wave Propagation, Soil-Structure Interaction and Numerical Methods

PATENTS

- Provisional Patent, "Rotation-Based Mechanical Adaptive Passive (RBMAP) Seismic Protection Device", 61/775,965, USPTO. *Mar 2013 and June 2014*

AWARDS, CERTIFICATES & HONORS

- Recipient of “Thomas Archibald Bedford Prize” for demonstrating **high scholastic ability and substantial contribution to the field of Civil Eng.** RPI. *May 2014*
- Recipient of **Certificate of Special Achievement as “Entrepreneurship Exemplar”**, Office of Entrepreneurship, Rensselaer Polytechnic Institute. *May 2013*
- “Elevator Pitch” competition finalist and winner of the **“Most Innovative Pitch”**, Office of Entrepreneurship, Rensselaer Polytechnic Institute. *April 2013*
- 1st place winner of the **“Class of ’51” Entrepreneurship competition**, Office of Entrepreneurship, Rensselaer Polytechnic Institute. *March 2013*
- Finalist and 2nd place winner of the best invention, **“Lemelson-MIT Rensselaer Student Prize”**, Rensselaer Polytechnic Institute. *Jan 2013*
- Winner of Invention Contest, **“Change the World Challenge”**, Office of Entrepreneurship, Rensselaer Polytechnic Institute. *Nov 2012*
- Recipient of the Rensselaer Polytechnic Institute **Founders Award, the highest honor** of the Convocation ceremony for embodying qualities of **creativity, discovery, leadership, and the values of pride and responsibility** at Rensselaer Polytechnic Institute. *Oct 2012*
- **Professional Leadership Certificate**, RPI Archer Center for Student Leadership Development, Rensselaer Polytechnic Institute. *May 2010*

PUBLICATIONS

Refereed Journals:

- **Attary, N.**, Symans, M.D., Nagarajaiah, S., Reinhorn, A.M., Constantinou, M.C., Taylor, D., Pasala, D.T.R. and Sarlis, A.A. (2015), Performance Evaluation of Negative Stiffness Devices for Seismic Response Control of Bridge Structures via Experimental Shake Table Tests. *Journal of Earthquake Engineering*, 19:2, 249-276, DOI: 10.1080/13632469.2014.962672.
- **Attary, N.**, Symans, M., Nagarajaiah, S., Reinhorn, A. M., Constantinou, M. C., Sarlis, A. A., Pasala, D. T. R. and Taylor, D. (2015), Numerical simulations of a highway bridge structure employing passive negative stiffness device for seismic protection. *Earthquake Engineering and Structural Dynamics*, 44: 973–995. doi: 10.1002/eqe.2495.
- **Attary, N.**, Symans, M.D., Nagarajaiah, S., Reinhorn, A.M., Constantinou, M.C., Taylor, D., Pasala, D.T.R. and Sarlis, A.A. (2015), “Experimental Shake Table Testing of an Adaptive Passive Negative Stiffness Device within a Highway Bridge Model.” *Journal of Earthquake Spectra (In Press)*. doi: <http://dx.doi.org/10.1193/101913EQS273M>
- **Attary, N.**, Symans, M.D., Nagarajaiah, S., “Development of a Rotation-Based Negative Stiffness Device for Seismic Protection of Structures.” *Journal of Vibration and Control (In Press)*. doi:10.1177/1077546315585435
- **Attary, N.**, Symans, M.D., Nagarajaiah, S., “Application of a Passive Negative Stiffness Device to a Benchmarked Cable-Stayed Bridge”. (*In Progress*)

Conference Proceedings:

- **Attary, N.**, Symans, M.D., Nagarajaiah, S., Reinhorn, A.M., Constantinou, M.C., Taylor, D., Pasala, D.T.R. and Sarlis, A.A. (2014). "Shake Table Testing of a Highway Bridge Structure with Passive Negative Stiffness Devices for Seismic Response Control," Proc. of the **6th World Conference on Structural Control and Monitoring**, Barcelona, Spain, July, 2014.
- **Attary, N.**, Symans, M.D., Nagarajaiah, S., Reinhorn, A.M., Constantinou, M.C., Taylor, D., Pasala, D.T.R. and Sarlis, A.A. (2013). “Performance Assessment of a Highway Bridge Structure Employing Adaptive Negative Stiffness for Seismic Protection,” Proc. of **2013 ASCE Structures Congress**, Pittsburgh, PA, *May, 2013*.
- **Attary, N.**, Symans, M.D., Nagarajaiah, S., Reinhorn, A.M., Constantinou, M.C., Taylor, D., Pasala, D.T.R. and Sarlis, A.A. (2012). “Performance Evaluation of a Seismically-Isolated

Bridge Structure with Adaptive Passive Negative Stiffness," Proc. of **15th World Conference on Earthquake Engineering** (15WCEE), Lisbon, Portugal, *September, 2012*.

- **Attary, N.**, Symans, M.D., Nagarajaiah, S., Reinhorn, A.M., Constantinou, M.C., Taylor, D., Sarlis, A.A. and Pasala, D.T.R. (2012). "Application of Negative Stiffness Devices for Seismic Protection of Bridge Structures," Proc. of **2012 ASCE Structures Congress**, Chicago, IL, *March 2012*.
- Attari, N. K. A, Rofooei, F.R., **Attary, N.** (2010), "Dynamic Liquid Pressure Envelope in Buried Liquid Storage Tanks under Near Field Earthquakes," Joint Conference Proc., **7th International Conference on Urban Earthquake Engineering** (7CUUE) & **5th International Conference on Earthquake Engineering** (5ICEE), Japan, *March, 2010*.

Research Reports:

- **Attary, N.**, (2013), "Development and Application of Negative Stiffness Devices for Seismic Response Control of Highway Bridge Structures." **Ph.D. Dissertation**, Rensselaer Polytechnic Institute.
- **Attary, N.**, Symans, M.D., Nagarajaiah, S., Reinhorn, A.M., Constantinou, M.C., Taylor, D., Pasala, D.T.R. and Sarlis, A.A. (2014), "Seismic Protection of Highway Bridges with Negative Stiffness Devices," **MCEER Report** 13-0013, Sept 2014.

TEACHING & MENTORING EXPERIENCE

- **Lecturer**, *Full-Time Faculty Member of Dept. of Civil & Env. Eng.*, Rensselaer Polytechnic Institute, Troy, NY
 - Undergraduate Courses: Strength of Materials (**Course Coordinator**) *Spring 2015*
 - Introduction to Engineering Design *Spring 2015*
 - Undergraduate Courses: Strength of Materials (**Course Coordinator**) *Fall 2014*
 - Introduction to Engineering Design *Fall 2014*
 - Undergraduate Course: Strength of Materials *Summer 2014*
 - Undergraduate Course: Strength of Materials *Spring 2014*
 - Graduate Course: Earthquake Engineering *Spring 2014*
- **Teaching Assistant**, Dept. of Civil & Env. Eng., Rensselaer Polytechnic Institute, Troy, NY
 - Undergraduate Course: "Introduction to Structural Engineering" *Fall 2012 & 2013*
- **Mentor**, Massachusetts Institute of Technology, Boston, MA
 - Mentor to 10 high school students on Invent Team, Eurekafest Events *Spring 2013*
- **Teaching Assistant**, Dept. of Civil & Env. Eng., Rensselaer Polytechnic Institute, Troy, NY
 - Graduate and Undergraduate Courses: "Advanced Structural Analysis" & "Autocad" *Spring 2013*
- **Mentor**, Rensselaer Polytechnic Institute, Troy, NY
 - Mentor to M.Sc. student in Structural Eng. through research program *Fall 2012*
- **Guest Lecturer**, Dept of Civil & Env. Eng., Rensselaer Polytechnic Institute, Troy, NY
 - Graduate Course: "Structural Dynamics" *Fall 2012 & 2013*
- **Guest Lecturer**, Dept of Civil & Env. Eng., Rensselaer Polytechnic Institute, Troy, NY
 - Undergraduate Course: "Introduction to Structural Engineering" *Fall 2012*
- **Mentor**, University at Buffalo, NY *Spring and Summer 2012*
 - Mentor to Undergraduate student in Structural Eng. for RPI Undergraduate Research Program
- **Mentor**, Rensselaer Polytechnic Institute, Troy, NY *Fall 2011*
 - Mentor to undergraduate student in Structural Eng. for RPI Undergraduate Research Program.
- **Teaching Assistant**, Dept. of Civil & Env. Eng., Rensselaer Polytechnic Institute, Troy, NY
 - Undergraduate Course: "Capstone Design" *Spring 2010*
- **Guest Lecturer**, Dept. of Civil & Env. Eng., Rensselaer Polytechnic Institute, Troy, NY
 - Graduate Course: "Earthquake Engineering" *Spring 2010*
- **Teaching Assistant**, Dept. of Civil Eng., University of Tehran, Tehran, Iran
 - Graduate Course: "Seismic Analysis Methods" *Spring 2007*

INDUSTRY WORK EXPERIENCE

- **Fundamentals of Engineering**, Civil Engineering, **E.I.T**, State of New York. *Oct 2012*
- **Freelance Engineer**, Seismic Rehabilitation of many life-line structures (Steel, Concrete and Masonry), including Electrical Power Switch Stations, National Dispatching Centers, Telecommunication Centers and Oil Tanks. Responsibilities included On-Site Evaluation, Analysis, Design, Cost Estimation and Drafting for more than **145,000 sq. ft.** area.
March 2006-May 2009
- **Engineer** at “CVR” Consulting Co., Tehran, Iran; Underground Structures. *Aug 2008-May 2009*
 - Analyzing and Designing underground structures of Z2-1 Subway Station, Tehran, Iran
- **Self-Contractor**, Karaj, Iran. *March 2004-May 2005*
 - Designing and **Constructing** a Four Story Steel Building, 11000 sq.ft.
- **Internship** at “SADRA” (Iran Marine Industry Company), Tehran, Iran. *May 2003-Aug 2003*

OUTREACH ACTIVITIES

- **Representative of Civil Eng. Dept. and Mentor**, educating high school students in **STEM** related fields, **Society of Hispanic Professional Engineers (SHPE)**. Rensselaer Polytechnic Institute, Troy, NY, *March 2015*.
- **Representative of Civil Eng. Dept. and Mentor** to students from *Harlem Academy* (middle school in NYC for **underrepresented black students**). Summer program for students to learn about innovations in **STEM fields**. Rensselaer Polytechnic Institute, Troy, NY, *June 2014*.
- **Official Judge** for “*The Clean Tech*” **International Competition**. **Worldwide research and design challenge** for pre-college youth to foster a deeper understanding of STEM related concepts, recognize outstanding talent, and prepare the next generation of globally competitive innovators. *March 2014*.
- **Mentor** of an “Invent team” for an innovative design challenge during EurekaFest event, Massachusetts Institute of Technology, Boston, MA, *June 2013*.

SERVICE TO CIVIL ENGINEERING COMMUNITY

- **Reviewer of Earthquake Engineering and Engineering Vibration** Journal, Springer
- **Reviewer of Engineering Structures** Journal, Elsevier
- **Reviewer of Journal of Engineering Mechanics**, American Society of Civil Engineers
- **Reviewer of Earthquake Engineering and Structural Dynamics**, John Wiley & Sons
- **Reviewer of Journal of Earthquake Engineering**, Taylor & Francis
- **Reviewer of Advances in Structural Engineering**, International Journal
- **Co-Moderator** of “Education and Outreach” Technical Session at NEES & CMMI Annual Joint Meeting Quake Summit, Boston, MA, *July 2012*.

SELECTED PRESENTATIONS

- *Poster Presentation*, “A Revolution in Earthquake Protection Devices: Rotation-Based Mechanical Adaptive Passive Device”, EurekaFest, Massachusetts Institute of Technology, Boston, MA, *June 2013*.
- *Poster Presentation*, “A Revolution in Earthquake Protection Devices: Rotation-Based Mechanical Adaptive Passive Device”, Celebration of Support (Presenting RPI’s Highest Achievements to Donors & RPI Alumni), Rensselaer Polytechnic Institute, Troy, NY, *April, 2013*.
- *Presentation*, “Performance Assessment of a Highway Bridge Structure Employing Adaptive Negative Stiffness for Seismic Protection,” ASCE Structures Congress, Pittsburgh, PA, *May, 2013*.

- *Presentation*, “Seismic Testing of an Isolated Scale-Model Bridge Structure with an Adaptive Passive Negative Stiffness Device”, NEES & CMMI Annual Joint Meeting Quake Summit, Boston, MA, *July 2012*.
- *Poster Presentation*, “Seismic Testing of an Isolated Scale-Model Bridge Structure with an Adaptive Passive Negative Stiffness Device”, NEES & CMMI Annual Joint Meeting Quake Summit, Boston, MA, *July 2012*.
- *Poster Presentation*, “Application of Negative Stiffness Devices for Seismic Protection of Bridges” NEES & MCEER Annual Joint Meeting Quake Summit, Buffalo, NY, *June 2011*.
- *Poster Presentation*, “Development of Next Generation Adaptive Seismic Protection Systems: Bridges,” 175th Anniversary of Dept. of Civil & Env. Eng., Rensselaer Polytechnic Institute, Troy, NY, *Oct 2010*.
- *Poster Presentation*, “Seismic Testing Using Shake Tables,” 175th Anniversary of Dept. of Civil & Env. Eng., Rensselaer Polytechnic Institute, Troy, NY, *Oct 2010*.
- *Presentation*, “Simplified Guidelines for Analyzing Deep Vertical Concrete Shafts for Seismic Loads”, Rensselaer Polytechnic Institute, Troy, NY, *March 2010*.

SERVICE TO SCHOOL

- Ambassador of Rensselaer Polytechnic Institute, representing Civil Eng. Dept. to prospective graduate Students. *May 2014- Aug 2014*
- Contributed to Preparing Civil Engineering Program Self-Study Report and Supporting Documents for **ABET Review** of Dept. of Civil & Env. Eng., Rensselaer Polytechnic Institute, Troy, NY *Feb 2013- Dec 2013*
- *Presentation & Lab Demonstrations* for RPI Medalist Open House, Dept. of Civil & Env. Eng., Rensselaer Polytechnic Institute, Troy, NY *Sep 2012 & 2013*
- Tours of Structural Dynamics & Earthquake Engineering Laboratory and Running Demos of Shake Table Testing, Rensselaer Polytechnic Institute, Troy, NY:
 - RPI Medalist Open House, *Sept. 2011*
 - Incoming Graduate Students, *March 2011*
 - Graduate Course (Earthquake Eng.), *Dec 2010*
 - 175th Anniversary of Dept. of Civil & Env. Eng., *Oct 2010*
 - Media Event (TV, Newspaper and Radio) for 175th Anniversary of Dept. of Civil & Env. Eng., *Oct 2010*
 - RPI Medalist Open House, *Aug 2010*

COMPUTER SKILLS

Engineering Software:

- Expert in: SAP2000, Perform 3D, ETABS, SAFE, AutoCAD, Civil 3D, SolidWorks, Zeus-NL, MASTAN, RISA, Seismosignal, Seismostructure, EERA, Surfer
- Familiar with: ANSYS, Prokon, SASSI, Shake, Revit, GTStrudl, Plaxis, STAAD.Pro, MAEViz, ERGO, HAZUS

Software for Structural Labs: MegaDaq, Pacific Instruments, LabView, PASCO Capstone

General Software: Matlab, Pascal, Microsoft Office, Fortran, Mathematica, MathCAD, Windows

PROFESSIONAL AFFILIATIONS

- Member of Chi Epsilon Civil Engineering Honor Society
- Member of EERI (Earthquake Engineering Research Institute)
- Member of ASCE (American Society of Civil Engineers)
- Member of ACI (American Concrete Institute)
- Member of AISC (American Institute of Steel Construction)