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Amir Sohrabi

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EDUCATION

May 2015 **Doctor of Philosophy**, MECHANICAL ENGINEERING, Texas A&M University, College Station, TX
- Thesis Topic: *non linear and Rate-Dependent Hysteresis Electro-Mechanical Responses of Ferro-Electric Materials*

May 2007 **Master of Science**, AERO STRUCTURAL ENGINEERING, Amirkabir University, Tehran, Iran
- Thesis Topic: *Stability Analysis of Moderately Thick Composite Structures Using Generalized Finite Strip Method*

May 2004 **Bachelor of Science**, MECHANICAL ENGINEERING IN FLUID, Iran University of Science & Technology, Tehran, Iran
- Thesis Topic: *Design, Simulation and Manufacturing of The 3R Wrist for a Robotic Arm*

SOFTWARE SKILLS

Simulation: Abaqus FEA, COSMOS, ANSYS, dealii, MSC ADAMS, Working Model 3D
Modeling: SolidWorks, Autodesk Mechanical Desktop, Autocad, CATIA
Computer Algebra System: Maple, MATLAB, wxMaxima
Programming: Fortran, C++, Python, Visual Basic
Documentation: Office, LATEX, Tecplot, ParaView, VisIt

CERTIFICATES

FE license awarded by the National Council of Examiners for Engineering and Surveying
IIMEC school certificate awarded by the International Institute for Multifunctional Materials for Energy Conversion

RELEVANT EXPERIENCES

Research Assistant, Texas A&M University, College Station, Texas   Jan'11 - Current

- Simulated electromechanical coupling of Active Fiber Composites

- Simulated folding of bimorph piezoelectric beam under very high electric potential

- Prepared a Python code for optimizing deflection of a honeycomb panel under pinching in Abaqus/CAE

- Designed and simulated a piezoelectric beam actuator for bending and twisting incorporating polarization switching phenomena with Abaqus/UEL and Abaqus/UMAT for high voltage that lead to 60% more displacement

- Developed a modular non linear time dependent Finite Element program for multifunctional materials in Fortran for analysis of piezoelectric devices that enables non linear and coupled constitutive equations and geometric non linearity

- Obtained a novel transient model for bending of piezoelectric composite beams

- Created a method for morphing of a smart truss systems by means of the Finite Element modelling

Design Engineer, PSACO Vibrating Equipment and Plants, Tehran, Iran   Jan'08 - Aug'09

- Enhanced performance and increased durability of vibratory sieves by using 3D mathematical models and MSC ADAMS

- Performed modal analysis to correctly predict dynamic responses of vibratory sieves for Ahvas Petrochemical Industries in a wide range of excitation frequencies resulted in enhancement of their vibration characteristic

- Designed and simulated a vibratory bulk material elevator using SolidWorks and COSMOS for handling materials for a food company which had space limitation in its plant

- Prepared an accident free installation procedure and designed safe transportation frame for vibratory sieves using SolidWorks and ANSYS to prevent transportation and installation damages

Design Engineer, MAPN Design and Manufacturing, Tehran, Iran   Dec'03 - Sep'04

- Designed and drafted parts for diesel generator using Mechanical Desktop

- Prepared technical drawing and engineered manufacturing process for the replacement parts by extracting dimensional and material data from obsolete malfunctioning parts

Engineering Intern, Iran Khodro, Karaj, Iran   Summer 2002

- Designed a totally automatized nut-feeder system using MSC ADAMS that increased safety and production speed in assembly line of Peykan Truck

Engineering Intern, Fahham Heavy Machinery, Shadabad, Iran,   Summer 2001

- Controlled quality of parts of a centrifugal casting machine which was being manufactured for Iran Pipes and Machinery in Fahham Heavy Machinery's machine shop

- Designed necessary fixtures or auxiliary manufacturing parts using Autocad

COMMUNICATION SKILLS

Spoken: English, Farsi, Turkish; **Learning:** French, Spanish
Latest Presentations: National Congress on Theoretical & Applied Mechanics, The American Society for Composites

SELECTED PUBLICATIONS

[1] M. Amir Sohrabi and Anastasia H. Muliana. Nonlinear and time dependent behaviors of piezoelectric materials and structures. *International Journal of Mechanical Sciences*, (0):–, 2015.

[2] Amir Sohrabi and Anastasia Muliana. Non linear time dependent responses of ferroelectric materials. In *17th U.S. National Congress on Theoretical and Applied Mechanics*, 2014.

[3] Sukanya Doshi, Amir Sohrabi, Anastasia Muliana, and JN Reddy. *Analyses of Multifunctional Layered Composite Beams*. CRC Press, 2013.

[4] Amir Sohrabi and Anastasia Muliana. Nonlinear time dependent finite element model for active composites. In *American Society for Composites 28th Technical Conference, September 9-11, 2013. State College, PA*, pages 293–305. DEStech Publications, Inc, 2013.

[5] Amir Sohrabi and Anastasia Muliana. Rate-dependent electro-mechanical coupling response of ferroelectric materials: A finite element formulation. *Mechanics of Materials*, 62:44–59, 2013.

[6] Amir Sohrabi and Anastasia Muliana. Finite element analysis for nonlinear time dependent response of piezoelectric materials. In *ASME 2012 International Mechanical Engineering Congress and Exposition*, pages 591–592. American Society of Mechanical Engineers, 2012.

[7] Amir Sohrabi and Anastasia Muliana. The time dependent behavior of active composite beams. In *American Society for Composites 27th Technical Conference, October 1-3, 2012. Sheraton Arlington Hotel, Arlington, Texas*, 2012.

[8] Amir Sohrabi and Anastasia Muliana. *Nonlinear Hysteretic Response of Piezoelectric Ceramics, Ferroelectrics - Characterization and Modeling*. InTech, 2011.

[9] Amir Sohrabi and H. R. Ovesy. Free vibration of thick plates using higher order finite strip. In *The 7th Iranian Aerospace Society Conference AERO2008, Tehran, Iran.*, 2008.

[10] Amir Sohrabi, H. R. Ovesy, and G. Morada. Post buckling analysis of thick rectangular laminates by using higher order shear deformable spline finite strip method. In *16th. Annual (International) Conference on Mechanical Engineering-ISME2008*, 2008.

[11] Amir Sohrabi and H. R. Ovesy. Spline fsm buckling analysis of higher order shear deformable rectangular laminates. In *APCOM07 in conjunction with EPMESC XI, Kyoto, JAPAN*, 2007.

[12] H. R. Ovesy and Amir Sohrabi. Buckling stability analysis of composite laminated plates using higher order spline finite strip. In *15th. Annual (International) Conference on Mechanical Engineering-ISME2007*, 2007.

[13] M. H. Korayem, Y. Jamali, N. Jaafari Hamraz, Amir Sohrabi, and S. Reazaee. Design & manufacturing a robot wrist: Performance, analysis. In *Tehran International Congress on Manufacturing Engineering (TICME2005)*, 2005.

WORK AUTHORIZATION

Eligible for CPT (Curricular Practical Training) as well as OPT (Optional Practical Training) for at least 29 months