

My CV

Zahra Ebrahimzadeh

Research interests: Variational Integrators, Computational Mechanics, Structure Preserving Methods, Dynamics and Control, Programming, Artificial Intelligence applications.

Education:

Ph.D. Mechanical Engineering, Isfahan University of Technology, Mech. Dep., 2016

- Thesis Title:” *Analysis and Development of Variational Integrators in Thermo-Mechanical Problems*”. Thesis supervisor **Prof. M. Mahzoon**(Shiraz University).
- *Visiting research scholar*, University of California SanDiego, Math. Dep. under supervision of **Prof. Leok**.
- 19/20 GPA.
- 1st Rank between graduated students.
- Recipient of Scholarship for sabbatical leave.
- Passed some abstract courses like *Tensor Analysis*(with 18.5/20), *Continuum Mechanics 2* II(19/20), *Advanced Engineering Mathematics* II(19.5/20), *Advanced Dynamics*(19.5/20) and *Nonlinear Finite Element*(18/20).
- Audited one graduate course in mathematics named Manifold Geometry, in Mathematics Department.

Master of Science. Mechanical Engineering, Isfahan University of Technology, Mech. Dep., 2008

- Thesis Title:” *Analysis and Modeling of Elastic, Vibration and Thermal behavior of Single- Walled Carbon Nano-tubes*”. Thesis supervisor Prof. S.Ziaie Rad.
- 18.8/20 GPA.
- Recipient of University Scholarship Sep. 2006 - Jun. 2007.
- 2nd Rank among Mechanical Engineering Department M.Sc. Students, Isfahan University of Technology, (2006-2008).

Bachelor of Science. Mechanical Engineering, Isfahan University of Technology, Mech. Dep., 2006

- Thesis Title:” *Study and Simulation of VSR (Vibration Stress Relief) by FEM*”. Thesis supervisor Prof. S. Ziaie Rad.
 - 17.4/20 GPA.
 - Recipient of University Scholarship..
 - 2nd Rank among Mechanical Engineering Department B.Sc. Students, Isfahan University of Technology, (2002-2006).

Honors and Awards

- Outstanding Student: awarded to 2 or 3 top students and guarantees admission without entrance exam to the M.Sc. program, Isfahan University of Technology (Iran), 2006.
- 2nd Rank among Mechanical Engineering Department M.Sc. Students, Isfahan University of Technology, (2006-2008).
- 2nd Rank among Mechanical Engineering Department B.Sc. Solid Mechanics Students, Isfahan University of Technology, (2002-2006).

Research Experience:

- Graduate Research Assistant, Dept. of Mechanical Eng., Isfahan University of Technology 2006-2008.
 - Conducted research on modeling behavior of Single-Walled Carbon Nanotubes.
 - Undergraduate Researcher, Study and modeling of VSR (Vibration Stress Relief) by FEM.
 - Linear Finite Element, Programming FEM code using Matlab for 3D structure and verifying results by ANSYS.
 - Nonlinear Vibration, Study nonlinear vibrations of tethered sub satellite.
 - Optimal Design, Optimizing some Problems Using Genetic Algorithm.
 - Advanced Control, Modeling, Simulating and Controlling the inverted pendulum (Theoretical and experimental).
 - Advanced Dynamic, Dynamic modeling flying simulator.
 - Plates and Shells, vibration of a thin plate with large amplitude.
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Work history:

- R&D scientist working on Applied AI, SnowaTECH, University of Isfahan, June 2023-Present. (*Worked on Conversational AI, LLMs, ASR and TTS, RAG and Dialogue manager*)
 - Faculty Member, Foulad Institute of Technology, Fall 2018-June 2023. (*Teaching and Supervising MSc Students*)
 - Design Engineer (part time), Paya Hydraulic Jam, March 2018-March 2019.(*Worked on Flight Simulator as entertainment equipment*)
 - **Maternity Leave, 2016-2018.**
 - Teacher Assistant-Advanced Math., Isfahan University of Technology-Mech. Dep. Feb. 2008 – Jun. 2008, Sep. 2009-Dec. 2009, Feb. 2010-Jun. 2010.
 - Teacher Assistant-Dynamics of Machines, Isfahan University of Technology-Mech. Dep. Feb.2009 –Jun. 2009.
 - Teacher Assistant- Mechanics of Materials I, Isfahan University of Technology-Mech. Dep. Sep. 2010- Jun. 2010.
 - Teacher Assistant- Dynamics, Isfahan University of Technology-Mech. Dep. Sep.2011 – Jun.2011.
 - Engineer, Isfahan Machine Design Co., Jun. 2005- Sep.2005.
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Papers:

- Z. Ebrahimzadeh, S. Ziaei-Rad, F. Karimzadeh, The effect of defects and environmental temperature on the elastic properties of SWCNTs, 5th student nanotechnology conference, Theran, Iran, 2009.
 - Z. Ebrahim Zadeh, M. Yadollahpour, S. Ziaei-Rad, F. Karimzadeh, “The effect of vacancy defects and temperature on fundamental frequency of single walled carbon nanotubes”, Computational Materials Science, V 63, 2012, pp 12–19
 - Z. Ebrahimzadeh, M. Leok, M. Mahzoon, "A new variational formulation for thermo-elastic problems", Communications in Nonlinear Science and Numerical Simulations, V 22, 2015, 263–268.
 - Z. Ebrahimzadeh, M. Mahzoon, S. Zeiaei-Rad, " An Introduction and Review on Variational Integrators", The 23rd Annual International Conference on Mechanical Engineering-ISME 2015, Amirkabir University of Technology, Tehran, Iran.
 - Z. Ebrahimzadeh, M. Leok, M. Mahzoon, Saeed ZiaeiRad, “Simulation of thermoelastic systems using variational integrators”, *submitted to journal “Communications in Nonlinear Science and Numerical Simulations”*.
 - O. Zokaei, H. Montazerolghaem, Z. Ebrahimzadeh, “Exploring FSW tool wear in stir welding Al 5083”, *Prepared*.
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Talks:

- Extension of variational integrators and their application in modelling thermoelastic problems, *Iranian-Austrian Winter School, Jan. 2019.*
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Skills:

- Programming: PYTHON, MATLAB, Maple.
 - Commercial Software: ANSYS, ABAQUS, CATIA, Mechanical Desktop, COMSOL.
FEA tools
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