

# BEHZAD MEHRAFROOZ

Department of Mechanical engineering  
Sharif University of technology, Tehran, Iran

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Date and place of birth: Nov/28/1991 – Neyshabur, Iran.  
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## EDUCATION

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| <ul style="list-style-type: none"> <li>• <b>M.Sc.</b> in BioMechanical Eng., Sharif University of Technology, Tehran, Iran<br/>Total GPA: 18.23/20<br/><b>M.Sc. thesis:</b> Molecular dynamics simulation of Actin: An investigation into the mechanical properties</li> </ul>            | Fall 2014<br>to date         |
| <ul style="list-style-type: none"> <li>• <b>B.Sc.</b> in Mechanical Engineering, Khaje Nasir Toosi University of Technology, Tehran, Iran.<br/>Total GPA: 16.03/20<br/><b>B.Sc. thesis:</b> Dynamic modeling of parallel and serial manipulators via Open Dynamics Engine(ODE)</li> </ul> | Fall 2010-<br>Summer<br>2014 |
| <ul style="list-style-type: none"> <li>• <b>High School Diploma.</b> in Physics and mathematics, Shahid Beheshti high school, Neyshabur, Iran<br/>Shahid Beheshti is a branch of NODET (National Organization for Development of Exceptional Talents)<br/>Total GPA: 19.10/20</li> </ul>  | Fall 2006-<br>Summer<br>2009 |

## M.Sc. Selected COURSES

Molecular Dynamics Continuum Mechanics Musculoskeletal Biomech	Prin of Bioengineering Occupational Biomechanics Physio and Anatomy 1&2	Basics of biomedical Engineering Spine biomechanics
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## RESEARCH INTRESTS

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| <ul style="list-style-type: none"> <li>• Molecular Dynamics simulations</li> <li>• Cell injection simulation</li> <li>• Nano biomaterial materials and tissues: Structure, deformation and failure</li> <li>• Kinematics Sensitivity analysis of manipulators</li> <li>• Musculoskeletal Modeling</li> </ul> | <ul style="list-style-type: none"> <li>• Drug Delivery Nanotechnology</li> <li>• Molecular Dynamics Programming</li> <li>• Dynamics modeling of serial robots</li> </ul> |
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## SPECIALIZED SKILLS

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| <ul style="list-style-type: none"> <li>• C++ Programming</li> <li>• LAMMPS</li> <li>• VMD</li> <li>• MSC ADAMS</li> </ul> | <ul style="list-style-type: none"> <li>• CMEX and Matlab programming</li> <li>• NAMD</li> <li>• MatODE</li> <li>• Solid Works</li> </ul> |
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## RELATED RESEARCH AND LABORATORY EXPERIENCES

- Molecular Dynamics Simulation of Carbon nanotube injection to the cell membrane
- Drug delivery through the Brain Blood Barrier, a molecular dynamics study
- Investigation of mechanical properties of  $\beta$ -Catenin via Molecular Dynamics Simulation
- Investigation of transient heat conduction in multiwall carbon nanotubes
- Dynamic and kinematic analysis of GimBall robot
- Developing a Method to model an n-linkage serial spatial Robot
- Developing algorithms for gait analysis of human marker tracking

## TEACHING EXPERIENCES

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| • Teacher assistant in Advanced Robotics    | instructor: Dr. M. Tale Masouleh<br>University of Tehran            | Winter<br>2013-15 |
| • Teacher assistant in Engineering Dynamics | instructor: Dr. A. Najafi<br>K.N. Toosi University of Technology    | Fall 2014         |
| • Teacher assistant in Statics              | instructor: Dr. T. Talebian<br>Islamic Azad University of Neyshabur | Fall<br>2013-14   |

## PUBLICATIONS

- M. Tahani, M. H. Abolbashari, S. Talebian, B. Mehrafrooz, and H. S. Nik, "Transient heat conduction in multiwall carbon nanotubes," Latin American Journal of Solids and Structures, vol. 12, pp. 711-729, 2015.
- B. Mehrafrooz, M. Mohammadi, and M. T. Masouleh, "Dynamic analysis of an n-revolute planar serial manipulator and sensitivity analysis based on Sobol's method," in Robotics and Mechatronics (ICROM), 2015 3rd RSI International Conference on, 2015, pp. 569-574.
- Molecular dynamics simulation and MRI-Guided precise control of magnetic nanotube for drug delivery to the brain blood barrier (submitted to the ISA transaction Journal)
- Investigation of the mechanical properties of Actin monomer under the tensile force, a molecular dynamics simulation (in Persian and submitted to the Modares mechanical engineering scientific research monthly journal)
- Coarse grain molecular dynamics simulation of Actin filament, an investigation on mechanical properties (submitted to the sixth international conference on nanoscience and nanotechnology, ICNN 2016)
- Dynamic modeling and sensitivity analysis of an n-linkage planar serial robot to design parameters based on Sobol and EFAST methods (in Persian and submitted to the Modares mechanical engineering scientific research monthly journal)

## HONORS AND AWARDS

- **13<sup>th</sup> rank**, Nationwide M.Sc. entrance exam in aerospace engineering of Iranian universities
- **1<sup>st</sup> Place**, Nationwide Khayyam robotic competitions 2012, Real rescue league, Neyhsaur, Iran
- **141<sup>th</sup> Rank**, Nationwide M.Sc. entrance exam in mechanical engineering of Iranian universities

## ADMINISTRATIVE AND PROFESSIONAL EXPERIENCES

- Research Associate @ Human and Robot Interaction Lab.(TaarLab), University of Tehran, Tehran, Iran
- Member of executive team of ICROM Conference 2012, Sharif University of Technology, Tehran, Iran
- Member of executive team of ICROM Conference 2014, K.N. Toosi University of Technology, Tehran, Iran
- Head of registration committee, spaghetti bridge completion 2013, K.N. Toosi University of Technology, Tehran, Iran
- Member of Jury, Specific line follower league, Nationwide Khayyam robotic competitions 2012, Neyhsaur, Iran
- Vice president of 9th executive council of Sampad graduated society of neyshabur 2015

## REFERENCES

- **Human-Robot Interaction Laboratory( TaarLab)**, [www.taarlab.com](http://www.taarlab.com)
- **Amir Shamloo**, Assistant Professor, Department of Mechanical Engineering, Sharif University of technology. [shamloo@sharif.edu](mailto:shamloo@sharif.edu)
- **Mehdi Tale Masouleh**, Assistant Professor, Department of Mechatronics, University of Tehran. [m.t.masouleh@ut.ac.ir](mailto:m.t.masouleh@ut.ac.ir)
- **Ali Nahvi**, Assistant Professor, Mechanical Engineering Department, K.N. Toosi University of Technology, [nahvi@kntu.ac.ir](mailto:nahvi@kntu.ac.ir)