

Alireza Mosavar

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INTERESTS	Cell Mechanics, Soft & Hard Tissue Biomechanics, Micro-Organisms Biomechanics, Mechanobiology	
EDUCATION	M.Sc. in Biomedical Engineering, Biomechanics	2015 – 2017 (Expected)
	University of Isfahan (UI), GPA (to-date): 18.41/20 (<i>1st Rank</i>)	Isfahan, Iran
	• Adviser: Dr. Nima Jamshidi	
EDUCATION	B.Sc. in Mechanical Engineering	2009 – 2013
	Isfahan University of Technology (IUT), GPA: 17.33/20 (<i>Graduated with Honors</i>)	Isfahan, Iran
	• Adviser: Dr. Mahmoud Kadkhodaei • Thesis: “Computational Modeling of Biomechanics of Bone around Oral Implants”, Grade: 20/20	
EDUCATION	High School Diploma in Mathematics & Physics	2005 – 2009
	Shahid Ejei High School, GPA: 19.60/20 (<i>Graduated with Honors</i>)	Isfahan, Iran
	Affiliated with NODET (<i>National Organization for Development of Exceptional Talents</i>)	
PUBLICATIONS	1. A. Mosavar , A. Ziaei, M. Kadkhodaei (2015) “The Effect of Thread Design on Stress Distribution in a Dental Threaded Implant under Consideration of Bone Anisotropy and Different Osseointegration Conditions: A Finite Element Analysis”, <i>Int J Oral Maxillofac Implants</i> , 30: 1317-1326. [doi: 10.11607/jomi.4091]	
	2. A. Mosavar , S.R. Hashemi, M. Nili, M. Kadkhodaei (2015) “A Comparative Analysis on Two Types of Oral Implants, Bone-level and Tissue-Level, with Different Cantilever Lengths of Fixed Prosthesis”, <i>J Prosthodont</i> . [doi: 10.1111/jopr.12388]	
	3. A. Mosavar , A. Ziaei, M. Kadkhodaei (2014) “Evaluation of Implant Stability in Transition to the Secondary Stability”, <i>ISME’14: International Conference on Mechanical Engineering</i> , Ahvaz, Iran.	
	• A. Mosavar , “Dynamics of Collective Cell Migration: Qualitative Modeling”. Submitted.	
RESEARCH EXPERIENCES	Assessment of Osteonecrosis in Bone Drilling	2015 – Present
	UI, RA, Supervisor: Dr. Nima Jamshidi	Isfahan, Iran
	• The aim of this study is to evaluate different drilling techniques regarding to necrosis. Through in-vivo and ex-vivo experiments, we compare the traditional drilling technique with water jet technique. To appraise the techniques, we employ various methods, including temperature variations analyses, image-based estimations (SEM) and histopathological assessments.	
	Flagellar Motion in Micro-Organisms	2014 – 2015
	University of Tehran, RA, Supervisor: Dr. Mahdi Moghimi Zand	Tehran, Iran
	• In this study, the effect of flagellum parameters in the swimming of a bacterium was investigated. We provided a computational model which integrated the fluid and flagella structure and the novelty of this study was the consideration of deformable flagella in the simulations.	
	Collective Cell Migration in Confluent Epithelium	Summer 2014
	Purdue University, RA, Supervisor: Dr. Taeyoon Kim (remotely working)	West Lafayette, USA
	• We reviewed the literature. Later, I followed it with preparing a particle-based numerical model from scratch to qualitatively describe and simulate the collective motion of cells. The motion of particles in the model was stochastic, did not include a preferred cell speed, was mainly based on interactions and included a memory of past velocities and notably interacting forces.	

	Biomechanics of Bone around Oral Implants	2012 – 2014
	IUT, RA, Supervisor: Dr. Mahmoud Kadkhodaei	Isfahan, Iran
	<ul style="list-style-type: none"> • Whereas the bone is anisotropic, it is assumed to be an isotropic material in approximately all of the previous computational studies about implants. Another simplification in simulating implant-bone interface biomechanics is the assumption of full or no osseointegration; by contrast, an implant never achieves full contact with the surrounding bone. Whilst not taking into account these two common simplifications, in a computational model, the implant thread profiles were evaluated. • In another study, we looked into influence of cantilever length of fixed prosthesis on stress distribution in peri-implant bone around two types of oral implants, bone-level and tissue-level, through FEA. • With the increase of short dental implants usage, high crown-implant ratio has become a common finding. The aim of our next study was to explore the influence of the ratio over success rate and marginal bone loss of dental implants. 	
	Autonomous Underwater Vehicles	2010 – 2013
	IUT, RA & Senior Designer, Supervisor: Dr. Mohammad Danesh	Isfahan, Iran
	<ul style="list-style-type: none"> • As the senior designer of the student team, I worked on the vehicle design, its aerodynamic and related simulations, thrust system, and assembly design although contributed in other concepts as well. 	
WORK EXPERIENCES	Co-Founder & CEO Arian Tejarat Ltd., Isfahan Science and Technology Town	2014 – Present Isfahan, Iran
	<ul style="list-style-type: none"> • In a start-up company, we are doing R&D on healthcare and medical devices. The main research of the team is on developing a variety of sanitizing devices based on atomizing technology. 	
TEACHING EXPERIENCES	Lecturer, UI • Computer Aided Design (~30 undergraduates; 96% satisfaction)	Isfahan, Iran Fall 2016
	Teaching Assistant, IUT • Hydraulics and Pneumatics (~70 undergraduates) • Fundamentals of Mechatronic Systems: PLCs (~40 undergraduates) • Machine Elements Design I (~50 undergraduates) • Machine Elements Design II (~50 undergraduates)	Isfahan, Iran Spring 2013 Spring 2013 Fall 2012 Fall 2012
PRESENTATIONS	<ol style="list-style-type: none"> 1. “Evaluation of Implant Stability in Transition to the Secondary Stability” (2014) ISME’14: The 22th Annual International Conference on Mechanical Engineering, Ahvaz, Iran. 2. “Computational Modeling of Biomechanics of Bone around Oral Implants” (2013) Undergraduate Thesis Defense, IUT. 	
HONORS & AWARDS	National Elite Foundation Scholarship for Exceptional Talents, Iran	2016 – 2017
	Full Scholarship for Master’s Degree through Nationwide Higher Education Exam, Iran	2015 – 2017
	National Outstanding Student of the Year Award Candidate for 2013, Iran	2014
	2013 Outstanding Student of the Year Award, IUT	2014
	Conference and Travel Grant, Dept. of Mechanical Eng., IUT	2014
	2012 Outstanding Student of the Year Award, IUT	2013
	Ranked 1 st in the National Skills Competition, Mechatronics section, Provincial round, Iran	2013
	Dean’s Achievement Award for excellence in Student Scientific Association, IUT	2013
	Enterprise National Award , recognition of Initiative and Innovation, Iran	2012
	Prime Design Award from the Light Flights Competition, IUT	2012
	Full Scholarship for Bachelor’s Degree through Nationwide University Entrance Exam, Iran	2009 – 2013
	Semifinalist in 25 th National Mathematical Olympiad, Iran	2007

PUBLIC DISSEMINATIONS	<i>Radio</i> , Isfahan province official radio; “Student Scientific Research Teams” <i>Radio</i> , Isfahan province official radio; “Social Concerns of Students and Adults” series	2013 2011
EXTRA-CURRICULARS	Editor-in-Chief , “Neuron” (seasonal scientific journal of the UI’s Dept. of Biomedical Eng.), 2016 – Present Research Manager , “Student Scientific Association” of the UI’s Dept. of Biomedical Eng., 2016 – Present · Coordinating and directing student research activities and groups in biomedical engineering Managing Editor , “Mechanica” (seasonal scientific journal of the IUT’s Dept. of Mechanical Eng.; ISSN: 2322-2336), 2012 – 2014 · Helping the editor-in-chief in setting up the journal; overseeing and coordinating the journal’s editorial activities; managing the staff; proofreading and approving papers and materials for print President , “Student Scientific Association” of the IUT’s Dept. of Mechanical Eng., 2012 – 2014 · Coordinating and directing student scientific activities, such as seminars, workshops and student teams Organizer , “Mechanical Engineering Research Day”, IUT, 2013 · Annual Exhibition for graduate students’ public presentation of their research posters Member of Executive Committee , A national workshop on “Modeling of Shape Memory Alloys (SMAs) under Multi-Axial and Cyclic Loadings”, IUT, 2013 Founding Organizer , “CycloGyro” reading group, IUT, 2011 – 2012 · Technical literature review on flight mechanisms, dynamics and aerodynamics	
COURSE PROJECTS	<ul style="list-style-type: none"> · Modeling Respiratory System and Emphysema through Bond Graph Modeling and Simulink, 2017 · Computational and Numerical Investigation of Arterial Blood Flow, 2016 · Analyzing the Carotid Blood Flow with Casson and Power-Law Models through Numerical Simulation and Analytical Method, 2016 · Conception of Future Developments in Artificial Pancreas, 2016 · Musculoskeletal Analyzing of Sitting Posture, 2016 	
COURSE PRESENTATIONS	<ol style="list-style-type: none"> 1. <i>Presentation</i>, Assessment of Drilling Effect on Bone Tissue, 2016 2. <i>Presentation</i>, Modeling the Blood Flow in Bypass Grafts, 2016 3. <i>Lecture</i>, Artificial Pancreas, 2016 4. <i>Presentation</i>: Principles and Applications of Bootstrapping Statistical Analysis, 2016 5. <i>Lecture</i>, Measurement of Flow and Volume of Blood, 2015 6. <i>Presentation</i>, Computational Modeling of Biological Systems: Collective Cell Migration, 2015 7. <i>Presentation</i>, Introduction to Abaqus Software Meshing Module and Its Bottom-Up Technique, 2013 	
SKILLS [*: <i>familiar</i>]	<p>Engineering Software: ABAQUS, CATIA, Simulink, Kinovea, SolidWorks*, OpenSim*, Design Expert*</p> <p>Programming Languages: MATLAB, C, QBasic, Mathematica*, Visual Basic*, Pascal*</p> <p>Miscellaneous: MS Word, MS PowerPoint, MS Excel, Adobe Photoshop</p> <p>Methods: Finite Element Method, Design of Experiments, Motion Analysis, Bond Graph Modeling</p> <p>Languages: Persian, English, Arabic*, French*</p>	
REFERENCES	<p>Dr. Mahmoud Kadkhodaei, Associate Professor, Dept. of Mechanical Eng., IUT</p> <p>Dr. Nima Jamshidi, Assistant Professor, Dept. of Biomedical Eng., UI</p> <p>Dr. Ahmad Sedaghat, Associate Professor, Dept. of Mechanical Eng., IUT</p> <p>Dr. Saleh Akbarzadeh, Associate Professor, Dept. of Mechanical Eng., IUT</p>	

[More details are available on my website.]