MOJTABA BARZEGARI

📍 Leuven, Belgium   📞 (+32) 483 086997

✉ mojtaba.barzegari@student.kuleuven.be

✉ mbarzegary@msn.com   in 🐙 f 📷   mbarzegary

Last Update: October 29, 2018

EDUCATION

PH.D. STUDENT, EARLY STAGE RESEARCHER   2018
BIOMECHANICS SECTION, KU LEUVEN   LEUVEN, BELGIUM

- **Major:** Computational Biomechanics
- **Supervisor:** Prof. Liesbet Geris

MASTER OF SCIENCE IN BIOMEDICAL ENGINEERING   2011 – 2014
DEPARTMENT OF LIFE SCIENCE ENGINEERING, UNIVERSITY OF TEHRAN   TEHRAN, IRAN

- **Major:** Biomaterials
- **Thesis:** Computational and Experimental Analysis of Dynamics of Urine Flow in the Lower Urinary System in the Physiological and Pathological Conditions using FSI Method
- **Supervisor:** Prof. Bahman Vahidi

BACHELOR OF SCIENCE IN MATERIALS SCIENCE AND ENGINEERING   2006 – 2011
DEPARTMENT OF MATERIALS ENGINEERING, AMIRKABIR UNIVERSITY   TEHRAN, IRAN

- **Major:** Industrial Metallurgy
- **Thesis:** Prediction of Microshrinkage Porosities using the Permeability Parameter Modeled with Artificial Neural Networks in Al-6%Si Alloy by Finite Volume Method
- **Supervisor:** Prof. S.M.H. Mirbagheri

RESEARCH INTERESTS

- Scientific Computing
- Computational Engineering
- GPU Programming and High-Performance Computing
- Machine Learning and Computational Intelligence
- Computational Biomechanics
- Computational Biology

RESEARCH PROJECTS

KU LEUVEN, IMEC   2018

Implementation of Machine Learning Models for Anomaly Prediction based on EEG and ECG signals

AMIRKABIR UNIVERSITY OF TECHNOLOGY   2013 – 2017

Development on OpenLB CFD Code in order to Modify the Shan-Chen Approach for Multiphase Fluid Simulation

UNIVERSITY OF TEHRAN   2012 – 2014

Implementation of Fluid-Structure Interactions Models to Simulate Fluid Dynamics of Human Body Fluids

UNIVERSITY OF TEHRAN   2013 – 2014

Implementation of ANN Models in MATLAB to Investigate Complex Parameters of Urology Diseases

UNIVERSITY OF TEHRAN   2011

Research on Applications of GPU Processing and GPGPU in Computational Biology

AMIRKABIR UNIVERSITY OF TECHNOLOGY   2010 – 2011

Development of Coupling Simulation Software Packages to Link Multiphysics CFD Models and AI using C++, C# and Python

AMIRKABIR UNIVERSITY OF TECHNOLOGY   2008 – 2011

Development of In-house CFD Codes using C++ for Simulating Fluid Flow and Heat Transfer in Metal Casting Process

AMIRKABIR UNIVERSITY OF TECHNOLOGY   2010 – 2012

Implementation of ANN Codes and Models using C# and MATLAB to Investigate Complex Relations between Porous Media Parameters and Permeability

AMIRKABIR UNIVERSITY OF TECHNOLOGY   2009 – 2011

Development of Dendrite and Microstructure Growth Software in C# and C++ to Simulate the Solidification Process of Metals

AMIRKABIR UNIVERSITY OF TECHNOLOGY   2008

Development of Heat Transfer Simulation Codes in MATLAB in order to Model Heat Treatment in Metals

PUBLICATIONS

PUBLICATIONS IN REFEREED JOURNALS

1. H. Bayani, S. M. H. Mirbagheri, **M. Barzegari**, and S. Firoozi, "Simulation of Unconstrained Solidification of A356 Aluminium Alloy on Distribution of Micro/Macro Shrinkage", *Journal of Materials Research and Technology*, Vol. 3, No. 1, pp. 55-70, 2014

PUBLICATIONS AS BOOK CHAPTERS

1. S. M. H. Mirbagheri, H. Bayani, **M. Barzegari**, and S. Firoozi, "Simulation of Liquid Flow Permeability for Dendritic Structures during Solidification Process", *Computational Fluid Dynamics Technologies and Applications*, Intec, 2011

PREPRINTS AND SUBMITTED PAPERS

1. **M. Barzegari**, H. Bayani, S. M. H. Mirbagheri, H. Shetabivash, "Multiphase Aluminum A356 Foam Formation Process Simulation Using Lattice Boltzmann Method", Submitted to *Journal of Materials Research and Technology*

2. **M. Barzegari**, H. Bayani, S. M. H. Mirbagheri, "A Criterion for Bubble Merging in Liquid Metal: Computational and Experimental Study", Submitted to *Computers and Mathematics with Applications*

3. **M. Barzegari**, B. Vahidi, M. R. Safarinejad, "A Clinical and Finite Elements Study of Stress Urinary Incontinence in Women Using Fluid-Structure Interactions", Submitted to *Journal of Clinical Biomechanics*

4. **M. Barzegari**, B. Vahidi, M. R. Safarinejad, M. Hashemipour "Pathological Analysis of Stress Urinary Incontinence in Females using Artificial Neural Networks", Prepared for Submission to *Neurourology and Urodynamics*

5. **M. Barzegari**, H. Bayani, S. M. H. Mirbagheri, "Simulation of Air Bubbles Interaction in Metallic Foams using Lattice Boltzmann Method", Submitted to *Journal of Applied and Computational Sciences in Mechanics* [Persian]

PUBLICATIONS IN REFEREED JOURNALS (IN PERSIAN)

1. **M. Barzegari**, B. Vahidi, M. R. Safarinejad, "Investigating Stress Urinary Incontinence in Women Using Computational Methods and Clinical Data", *Journal of Modares Mechanical Engineering*, Vol. 17, No. 5, pp. 417-427, 2017

2. S. M. H. Mirbagheri, H. Bayani, **M. Barzegari**, "Micro Shrinkages Simulation in Mushy Zone by Permeability Calculation", *Journal of Iranian Foundrymen's Society*, Vol. 102, pp. 42-50, 2013

3. **M. Barzegari**, S. M. H. Mirbagheri, "Assessment of the Slope and Cross-Section of In-Gate on the Pressure and Flow Pattern Using Finite Volume Method", *Journal of Metallurgical and Materials Engineering*, Vol. 22, No. 2, pp. 21-36, 2011

PUBLICATIONS IN REFEREED CONFERENCE PROCEEDINGS

1. **M. Barzegari**, B. Vahidi, M. R. Safarinejad, "Computational Simulation of Stress Urinary Incontinence using Fluid-Structure Interaction Analysis", *25th International Conference on Mechanical Engineering*, Tehran, Iran, 2017 [Persian]

2. **M. Barzegari**, H. Bayani, S. M. H. Mirbagheri, "Computational and Experimental Investigation of Air Bubbles Coalescence in Metal Melts", *25th International Conference on Mechanical Engineering*, Tehran, Iran, 2017 [Persian]

3. S. Gholami, A. Danayi, A. Rezaee, **M. Barzegari**, "Embedded Systems and the Challenge of Complex Computing in Internet of Things", *1st International Conference on Internet of Things, Applications and Infrastructure*, Isfahan, Iran, 2017 [Persian]

WORK EXPERIENCES

Selected Projects (Among 20 More) in 15 Years of Professional Software Development and Computer Programming Experiences:

INTERNET OF THINGS & EMBEDDED SYSTEMS

- Design and Implementation of Smart Home Solutions based on IoT and Cloud Computing Paradigms, Freelance Projects 2016–2017

- Design and Implementation of Embedded Systems and Embedded Linux Programs using C, C++, Python and GNU Toolchains, Amirkabir University of Technology 2016–2017

WEB & MOBILE APPLICATIONS

- Implementation of Resources and Documents Management Software for Iran Red Crescent Society using C# and .NET Web Technologies 2015–2016

- Implementation of Online Shopping System for Parhoon Koosha Co. using PHP 2016

- Implementation of Android-based Enterprise Apps using Java and Xamarin Technologies, Freelance Projects 2015–2016

- Development and Optimization of the User Interface of Comprehensive Medical Instruments Software, Avizheh IT Co. 2014

- Development of Commission Management Software for Tehran Municipality using .NET Web Technologies 2011

DESKTOP & ENTERPRISE APPLICATIONS

- Development of Estate Profiling Software using C#, Venus IT Co. 2013

- Development of Tenran Districts Profiling and Reporting Software for Tehran Municipality using C# and .NET Technologies 2012

- Development of Office and Workflow Automation Software for Iran Tube and Machine Manufacturing Corporation using C# and .NET Technologies, Avizheh IT Co. 2010–2011

- Development of Project Control and Operational Automation Software for Iran Railway Corporation using VB and .NET Technologies, Avizheh IT Co. 2008–2011.

- Development of Workflow Management Software for Parhoon Koosha Co. using C# and .NET Technologies 2006

SCIENTIFIC APPLICATIONS

- Implementation of SUTCast Simulation Software Code in MATLAB (Fluid Flow and Heat Transfer), Razi Research Center of Applied Science   2015

- Implementation of ANN Model for Optimization of Rolling Parameters in Mobarakeh Steel Manufacturing Co. using MATLAB   2014

- Development of Mathematical Computation and Function Plotting Software using C# (Awarded as 2nd Place in Khwarizmi Young Award)   2004

- Development of Robot Control Software using VB, Iran Students' Foundation   2003

TEACHING EXPERIENCES

UNOFFICIAL TEACHING

- Teaching Metal Casting Simulation to Mechanical Engineering Students

- Teaching Scientific Computing Concepts to Biomedical Engineering Students

- Teaching Advanced Programming to Electrical Engineering Students

- Teaching Computer Basics and Mathematics to Kids

WORKSHOPS

- "Towards Embedded Systems, Motivational Role of Free Software", TEHRAN SOFTWARE FREEDOM DAY FESTIVAL, SHARIF UNIVERSITY OF TECHNOLOGY   2016

- "An Introduction to LaTeX for Thesis Typesetting", UNIVERSITY OF TEHRAN   2013

AWARDS

- Awarded Researcher of Department of Materials Science and Engineering, Amirkabir University of Technology, 2011

- 2nd Place in Khwarizmi Young Award in Tehran Province in the field of Mathematics (Project Title: Mathematical Computation and Function Plotting Software), 2004

TECHNICAL SKILLS

- **Operating Systems**
  Microsoft Windows (Client & Server), GNU/Linux (Desktop & Embedded)

- **Programming Languages & Frameworks**
  C, C++, C#, Python, Java, Visual Basic, T-SQL, ActionScript, .NET and .NET Core, Android App Development, Xamarin, Universal Windows Platform (UWP), Arduino

- **Scientific Computing**
  MATLAB & GNU Octave, Maple, CUDA

- **Databases**
  Microsoft SQL Server, MySQL (MariaDB)

- **Web Development**
  HTML, CSS, JavaScript, PHP, ASP.NET, Django

- **Engineering Software Packages**
  SolidWorks, ANSYS (Mechanical, Fluent, Explicit Dynamics & AUTODYN), ProCAST, MSC Patran, MD ADAMS, COMSOL

- **Other**
  LaTeX, Machine Learning Libraries, Docker, Git

Personal Details

- **Date of Birth:** February 25th, 1988

- **Nationality:** Iranian

- **Languages Known:**

  - Persian: Native
  - English: TOEFL iBT: 106 out of 120 (Exam Date: 14.Oct.2017)
    * Reading: 29, Listening: 23, Speaking: 27, Writing: 27

- **Extracurricular Activities:**

  - Amateur Guitar Playing (Bass, Acoustic, Electric)
  - Playing Volleyball & Chess
  - Swimming & Walking
  - Playing Computer & Mobile Games
  - Reading Science, Music, and History Books

References

1. Prof. Liesbet Geris:

   - KU Leuven, Leuven, Belgium
   - +32 16 372690
   - liesbet.geris@kuleuven.be   kuleuven.be/wieiswie/en/person/35945

2. Prof. S. M. H. Mirbagheri:

   - Amirkabir University of Technology, Tehran, Iran
   - +98 21 64542961
   - smhmirbagheri@aut.ac.ir   aut.ac.ir/smhmirbagheri

3. Prof. Bahman Vahidi:

   - University of Tehran, Tehran, Iran
   - +98 21 86093021
   - bahman.vahidi@ut.ac.ir   fnst.ut.ac.ir/en/bahman.vahidi