AMIRALI SELAHI

2041 Emerging Technologies Building, College Station, TX 77843
a_selahi@tamu.edu
www.linkedin.com/in/amiraliselahi

EDUCATION

May 2021 **Ph.D. in Biomedical Engineering**, Texas A&M University, US

Thesis: 3D Cylindrical Lymphangion-on-a-chip: new preclinical model of lymphatic vascular dysfunction & therapeutic responses *Thesis Adviser:* Dr. Abhishek Jain

- Co-culture of a layer of ECs with multiple layers of SMCs embedded inside the hydrogel

Aug 2015 **M.S. in Mechanical Engineering (Biofluid Mechanics),** Sharif University of Technology, Iran

Thesis: A novel magnetic centrifugal microfluidic device to separate CTCs from blood sample

Aug 2012 **B.S. in Mechanical Engineering**, Shiraz University, Iran

Thesis: Modeling of micro-particle deposition in nasal cavity pre-and post- surgical opening of the sphenoid sinus

SKILLS

Microfabrication Optical and soft lithography, Certificates of class 100/1000 cleanroom (Spin-coater- Mask Aligner - Micro Automation Dicing tool), CNC and laser machine operation, PDMS devices fabrication, Microelectromechanical systems (MEMS)

Biology 3D cell culture, Vascular Biology, Immunocytochemistry, Cell Viability Assays, Surface modification techniques such as Silanization and Plasma modification

Imaging Fluorescence Microscopy, Laser Confocal Microscopy, Raman and Coherent Anti-stokes Raman (CARS) Spectroscopy, PMT signal processing

Computer Skills

- *Programming*: MATLAB
- *Computational Fluid Dynamics (CFD)*: ANSYS, COMSOL, OPENFOAM
- *3D Design*: SOLIDWORKS, AutoCAD, MIMICS
- *Image Analysis and Plotting*: ImageJ, Adobe Illustrator, GraphPad, Tecplot, ZEISS Zen
- LabVIEW, EXCEL, PowerPoint

RELEVANT EXPERIENCES

Jan 2018 - Present **Graduate Research Assistant,** *BioinSyst Lab*, Department of Biomedical Engineering, TAMU, US

- Led the microfabrication group at BioinSyst lab
- Set up the cleanroom facilities for photolithography
- Developed and characterized a novel 3D cylindrical organ-on-a-chip device for cells co-culture used in vascular research
- Characterized a tunable hydrogel-based platform (Collagen and GelMA) for 3D cell culture
- Adopted and characterized the previously established platform for lymphatic cells culture

Sep 2016 - Dec 2017 **Graduate Research Assistant,** *BioMEMS Lab*, Department of Electrical Engineering, TAMU, US

- Designed and fabricated a novel droplet microfluidics platform for microalgae cell growth analysis
- Designed and fabricated a high-throughput microfluidic-CARS cellular screening platform
- Developed a platform of mid-infrared spectroscopy for cell detection
- Trained several graduate students on photolithography setup at AggieFab Micro/Nanofabrication Facility

Sep 2012 - Aug 2015 **Graduate Research Assistant,** *Nano-Bio Engineering Group*, Sharif University of Technology, Iran

- Designed, modeled, and fabricated a novel centrifugal microfluidics to separate CTCs from blood sample
- Developed a code in C++ and MATLAB to model the magnetic force applied to micro/nano beads

May 2011 - Sep 2011 **Product Development Engineer Intern,** *Taghdis Porcelain Company*, Gonabad, Iran

- Professionally used several software and FEA simulation technics including AutoCAD, ANSYS, and MATLAB to compute, design, model, and document 8 new porcelain/ceramic products
- Effectively diagnosed and repaired diverse mechanical stations on site using drilling, welding, bolting, and other techniques; repaired and maintained Automotive such as Lift Track, vehicles, and Lifters

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TEACHING EXPERIENCES

Aug 2019 - Dec 2019 **Graduate Instructional Assistant,** *Biofluid Mechanics*, Department of Biomedical Engineering, TAMU, US

- Held biweekly tutorial session for over 70 senior level students
- Designed the term project and instructed students on how to perform a top-notch research in vascular disorders

Jan 2018 - May 2018 **Graduate Teaching Assistant,** *Principles of Electrical Engineering*, Department of Electrical Engineering, TAMU

- Laboratory Instructor for over 120 Junior and Senior level students
- Modified the laboratory instruction manual for the PLC controller experiments

May 2012 - Jan 2013 **MATLAB Instructor**, *Society of Mechanical Engineers*, Shiraz University, Iran

- Trained nearly 50 students and researchers on how to use MATLAB to analyze data, conduct research, and develop programming skills

Sep 2010 - Jun 2011 **High School Mathematics Teacher,** *Taha High School*, Shiraz, Iran

AWARDS

Mar 2011 **Gold Medal Award** from the International Exhibition of Inventions, Geneva, Switzerland.

- Selected as the highest-ranked project in engineering section among 54 teams from 32 countries across the world
- Invention and fabrication of a smart submersible vehicle (named Soshia), designed for exploration, damage estimation, and flood rescue.
- Group of twelve students from the departments of Mechanical, Electrical, Computer, and Engineering as well as Computer and Marketing Science worked together in a team for three and a half years.
- Awarded the Diploma of National Authority for Scientific Research by the Ministry of Education of Romania.

Nov 2018 **Three Minute Thesis Competition (3MT)**, TAMU, US.

- Among the top eight Ph.D. students selected for to the final round from more than 70 contestants
- The only candidate from the Department of Biomedical Engineering advanced to the final round
- Link to the presentation video: *https://www.youtube.com/watch?v=B0IQA3eytW0*

Aug 2019 **Oral Presentation Award**, ARS 2019, TAMU, US.

- Selected among the top three oral presenters from more than 40 BMEN Graduate Students

LEADERSHIP

Aug 2019 - Present Senator at the Graduate and Professional Student Government, TAMU, US

- Representing the Department of Biomedical Engineering in GPSG weekly meetings to ensure that the needs of graduate and professional students are understood and considered when campus policies concerning academic excellence, tuition and finance, and research are made.
- Member of the Advocacy community to establish and maintain open and effective communication with the University and its constituents.

May 2019 - Present Executive member of Biomedical Engineering Graduate Student Association (BMEGSA), TAMU, US

- Identify, share, and discuss issues pertinent to graduate and professional students at BMEN department in order to maintain academic freedom; improve the quality of instruction; and develop and strengthen recruitment programs.

Sep 2018 - Aug 2019 Executive member of 3rd Annual Research Symposium (ARS2019), TAMU, US

Mar 2018 Senior Division Judge at the Texas Science and Engineering Fair, TAMU, US

Aug 2012 - Present Mentor for seven undergraduate students to successfully complete short and long-term projects

Aug 2010 – May 2015 Executive member of the following conferences:

- 13th International Fluid Dynamics Conference, Iran
- 5th International Computational Fluid Dynamics Conference, Iran
- 20th International Mechanical Engineering Conference, Iran

Aug 2010- July 2012 President of the Mechanical Engineering Student Association (MESA), Shiraz University, Iran

SELECTED PUBLICATIONS

2019 Jain, A., Mathur, T., Pandian, N.K. and Selahi, A., 2020. Organ-on-a-chip and 3D printing as preclinical models for medical research and practice. In Precision Medicine for Investigators, Practitioners and Providers (pp. 83-95). Academic Press.

2019 Selahi, A., Muthuchamy, M. and Jain, A., 2019. 3d Cylindrical Lymphangion-on-a-chip: a New Method to Model Lymphatic Inflammatory & Therapeutic Responses. Arteriosclerosis, Thrombosis, and Vascular Biology, 39(Suppl_1), pp.A274-A274.

2019 Saad, M.G., Selahi, A., Zoromba, M.S., Mekki, L., El-Bana, M., Dosoky, N.S., Nobles, D. and Shafik, H.M., 2019. A droplet-based gradient microfluidic to monitor and evaluate the growth of Chlorella vulgaris under different levels of nitrogen and temperatures. Algal Research, 44, p.101657.

2016 Shamloo, A., Selahi, A. and Madadelahi, M., 2016. Designing and modeling a centrifugal microfluidic device to separate target blood cells. Journal of Micromechanics and Microengineering, 26(3), p.035017.Mentor undergraduate students to successfully complete short-term projects.