

NIMA MOSLEMY

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Sex: Male
Nationality: Iranian
Date of Birth: June 8, 1999
Edinburgh, UK

EDUCATION

PhD

Heriot-Watt University, Mechanical Engineering
Supervisors: Dr. Faezeh Shalchy, Dr. Ali Ozel, and Dr. Muhammad Ikhlaq
Jan. 2025- Dec. 2028

MSc

Amirkabir University of Technology, Biomechanical Engineering
Thesis: "Design and fabrication of edible scaffolding for use in cultured meat by 3D bioprinting." Passed by A Level Project Mark
Supervisors: Dr. Nabiollah Abolfathi and Dr. Mohammad Tafazzoli-Shadpour
Sep. 2021- Dec. 2023

BSc

Amirkabir University of Technology, Biomechanical Engineering
Thesis: "Design and manufacture of RTV-2 silicone 3D printer." Passed by A Level Project Mark
Supervisor: Dr. Nabiollah Abolfathi
Sep. 2017- Sep. 2021

RESEARCH INTEREST

Additive Manufacturing, 3D Printing, Metal 3D Printing, Tissue Engineering, Bioprinting, Biomechanics.

HONORS AND AWARDS

- Awarded a scholarship by Dyson Co.
- Awarded fully-funded PhD program at Heriot-Watt University, Edinburgh, UK.
- Studying BSc and MSc in Iran's top Biomedical Engineering Department at Amirkabir University of Technology, Iran
- Ranked at the top in the National Entrance Exam for Iranian University, Iran, 2017 AND 2021

LABORATORY EXPERIENCE

- Surface roughness measurement using Atomic Force Microscopy (Amirkabir University of Technology)
- Surface roughness measurement using Confocal microscopy (Shahid Beheshti University)
- Surface roughness measurement using White light interferometer
- Surface analysis using Scanning electron microscopy (Amirkabir University of Technology) Tensile test using a Universal Testing Machine (strength of materials lab)
- 3D printing (Amirkabir University of Technology workshop)

- Force plate
- Electrocardiography, Electromyography, Audiometer, spirometer, Blood type diagnosis test (physiology lab)
- Defibrillator, ventilator, injection pump, blood warmer (medical equipment workshop)

RESEARCH EXPERIENCE

- Study on alignments of collagen fibers of breast cancer tissue: Tissue preparation, SEM, AFM, Machine learning analysis, Collaboration with Amirhossein Noori
- Study and analyze (Mechanical properties, Cell viability, Adhesion) Three different geometry of scaffolds (Gyroid, Diamond, Honeycomb): Laboratory experience (Strength of Material, Cell Seeding, Sample Preparation), design and manufacture a hybrid printer, Data analysis, Collaboration with Emad Sharifi.
- Develop and fabricate a metal filament for FDM 3D printers: Printing, Filament Extruding, Synthesis of Materials, and Collaboration with Ali Arabi.

TEACHING EXPERIENCE

Heriot-Watt University, Edinburgh

Jan 2025 to May 2025

Teaching Assistant, School of Engineering and Physical Sciences

- Design and manufacture, an under-graduated course averaging 90 students per semester, covering the following topics: Witness Horizon and Inventor (CAM) Software.
- Developed Lab classes and exams.

Amirkabir University of Technology, Tehran

Sep 2023 to Jan 2024

Teaching Assistant, Biomedical Engineering Department

- Strength of Material (II), an under-graduated course averaging 40 students per semester, covering the following topics: Analysis and Design of Beams, Principal Stresses, Deflection of Beams, Columns, Energy Methods
- Developed quizzes, exams, and homework.

Amirkabir University of Technology, Tehran

Jan 2023 to Jun 2023

Teaching Assistant, Biomedical Engineering Department

- 3D printing Methods in Biomedical Engineering, a graduated course averaging 20 students per semester, covering the following topics: Rapid Prototyping, Treatments, Bioprinting, Digital imaging, Hydrogels
- Developed quizzes, exams, and homework.

Amirkabir University of Technology, Tehran

Sep 2022 to Jan 2023

Teaching Assistant, Biomedical Engineering Department

- Strength of Material (II), an under-graduated course averaging 40 students per semester, covering the following topics: Analysis and Design of Beams, Principal Stresses, Deflection of Beams, Columns, Energy Methods
- Developed quizzes, exams, and homework.

PUBLICATIONS

Journal Papers

Moslemy, N., Sharifi, E., Asadi-Eydivand, M. and Abolfathi, N. (2023), Review in Edible Materials for Sustainable Cultured Meat: Scaffolds and Microcarriers Production. Int J Food Sci Technol. <https://doi.org/10.1111/ijfs.16703>

Mohammad Nabi, S., Moslemy, N. Shalchy, F., Askarinejad, S., (2024), Application of Artificial Intelligence (AI) on Additive Manufacturing (AM) processes within the biomedical field: A Review. Journal of the Mechanical Behavior of Biomedical Materials. (Accepted)

Moslemy, N., Taffazoli, M., and Abolfathi, N., (2024), Development of an Edible Scaffold Utilizing Isolated Soy Protein for Sustainable Cultured Meat Production through 3D Bioprinting: A Research article. (Submitted)

Internal Journal Papers

A review article entitled "Pneumatic applications in biomechanics" in Tapes 34 a Journal of Biomedical Engineering associated with Amirkabir University, April 2021

A review article entitled "Silicone 3D Printer" in Tapes 33 a Journal of Biomedical Engineering associated with Amirkabir University, June 2021

PRESENTATIONS AND INVITED LECTURES

Workshop, “Intro to 3D Printing”, at PTD company.

Presentation, “Intro to Metal 3D Printing”, at Amirkabir University.

PROFESSIONAL TRAINING

Cell Culturing

Tafazzoli's Lab, Amirkabir University, Tehran, March 2023

Metal 3D Printing Workshop

NOORA.Co, Tehran, May 2022

3D Bioprinting Workshop

Omid Afarinan.Co, Tehran, March 2022

Universal Testing Systems

Instron, Edinburgh, UK

NIKON XT H 225 3D Scanner

Heriot-Watt University, Edinburgh, UK

PROFESSIONAL AFFILIATIONS

Heriot-Watt University, Jan 2025- Present

Post-graduate researcher, School of Engineering and Physical Sciences

Amirkabir University of Technology, Sep 2021- Dec 2024

Research assistant in Bio Fabrication Lab (BFL) at Amirkabir University of Technology.

Pishgaman Teb.Co, Head of Department, Manufacturing,

Sep 2021 to Sep 2022

- Management of 4 employees in the Manufacturing department
- Upgrade all devices until the end of my management time
- The satisfaction of my employees and CEO with my work
- Over six hundred patients' specific prosthesis design and prints with SLM, PolyJet, DLP, and FDM

CMFRC (Cranio-Maxillofacial Research Center Associated with Tehran University of Medical Science, TUMS), Design & Manufacturing

Sep 2021 to May 2022

- Assisted with collecting and gathering the required information
- Assisted in post-processing of prosthesis and found some new approaches
- Presenting new designs to doctors and getting their comments
- Study-related standards and try to get ISO
- Daily communication with doctors and patients
- Having experience and skills in troubleshooting 3D printers (SLM, Polyjet, DLP, FDM)
- 1 Year of work experience in Shariati's Hospital

PROJECTS

- AVP (Amirkabir Ventilator Project), Design of a medical ventilator used for COVID-19 patients in collaboration with the AVP Team.
- Abaqus, Analyses of a prosthesis that was customized for a patient.
- Tracker analysis of hand motion, Dumbbell lateral raise, and Biomechanical analysis.
- Design and manufacture of a 3D printer with H-bot System.
- Design a 2-nozzle printer for hybrid 3D printing.
- Programming robot motion with MATLAB.
- Analysis of a soft & hard Shoes spring-damper model by Simulink in MATLAB.
- Design of Patient-Specific Prosthesis, Surgery Guides, Splints for Oral and Maxillofacial Patients-12 Cases

NOTABLE COURSES

- Impact Biomechanics: 4/4
- Orthopedic Biomechanics: 4/4
- Finite Element Methods in Biomechanics: 4/4
- Orthoses and Prostheses Design: 4/4
- Wound Healing: 4/4
- Strength of Materials Lab: 4/4

SEMINARS

- Voluntary participation in "Biomaterials in Tissue Engineering and Regenerative Medicine," May 29, 2023, Amirkabir University of Technology, Biomedical Engineering faculty, Tehran, Iran

- Voluntary participation in "Innovation applications in Biomedical Engineering," November 1, 2021, Amirkabir University of Technology, Biomedical Engineering faculty, Tehran, Iran
- Voluntary participation in "Robotic rehabilitation systems for gait training," January 12, 2019, Amirkabir University of Technology, Mechanical Engineering Faculty, Tehran, Iran
- Voluntary participation in "Prospective of Biomedical Engineering with data science," September 27, 2021, Amirkabir University of Technology, Biomedical Engineering faculty, Tehran, Iran
- Voluntary participation in "Introduction to Biomaterials, Biomechanics, and Bio electrics," November 9, 2018, Amirkabir University of Technology, Biomedical Engineering faculty, Tehran, Iran

LANGUAGES

English: Fluent

IELTS Exam Score: 6.5

Listening: 6 Reading: 7.5 Writing: 6 Speaking: 6.5

Persian: Native Language

COMPUTER SKILLS

Programming: Python (Jupyter Notebook), C, LaTeX, HTML, CSS.

Applications and Platforms: Materialise Software (Mimics, 3Matic, Magics), Solidworks, Inventor, nTopology, Abaqus, Volume Graphics, Witness Horizon, MATLAB, Tracker, Image J, VOSviewer, Biblioshiny, GraphPad Prism, 3D Printer's Slicers, Microsoft Office, and Google Workspace.

HUBBIES

Listening Music

Playing Guitar

Walking, Gym, Martial Arts

Reading Poems and books

REFERENCES

Dr. Nabiollah Abolfathi, Assistant Professor
Biomedical Engineering Department
Amirkabir University of Technology
Email: nabolfathi@aut.ac.ir

Dr. Mehdi Shafieian, Assistant Professor
Biomedical Engineering Department
Amirkabir University of Technology
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Dr. Mohammad Tafazzoli-Shadpour, Professor
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Amirkabir University of Technology
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