Name: **Kaveh Alizadeh**

Email: kaveh.alizadeh@sharif.edu

Education
Ph.D.
University: **Sharif University of Technology** (2021-Present)

Major: **Nanotechnology**

GPA: 19.11/20.00

Supervisors: **Prof. Ali Esfanidar & Prof. Arash Simchi**

Thesis: **Electrolyte-Electrode Interface Modification in Solid-State Li-Metal Batteries using Nanostructured Mixed Ionic-Electronic Conductors**

M.Sc.
University: **Amirkabir University of Technology** (2017-2020)

Major: **Mechanical Engineering** (Specialization: Manufacturing Processes)

Thesis: Evaluation of formability and forming analysis of thick anisotropic Ti sheets at various temperatures using experimental and thermo-mechanical coupled finite element method

Supervisors: Prof. Bijan Mollaei-Dariani

B.Sc.
University: **Tabriz University**   (2013-2017)

Major: **Mechanical Engineering** (Specialization: Manufacturing Processes)

Thesis: Wire electrical discharge machining of magnesium alloys: the investigation of the effect of process input parameters on performance characteristics

Supervisor: Prof. Amir Mostafapour

Research Interests
All Solid-state Li-metal Batteries

Battery Technology

Two-Dimensional Electronic Materials (MXenes, TMDs, Van der Waals Heterostructures)

Machine Learning Accelerated Design and Discovery of Battery Materials

English Proficiency Exams
TOEFL (ibt)**: 96/120**

Achievements
Ranked 7th out of +19,000 participants in the National University Entrance Exam for M.Sc. degree in Mechanical Engineering (2017).

Ranked 3rd in the Department of Mechanical Engineering among entrants of 2013, Tabriz University.

Publications and Selected Projects
C. Majidi, **K. Alizadeh**, Y. Sik Ohm, A. Silva, M. Tavakoli, "**Liquid Metal Polymer Composites: form Printed Stretchable Circuits to Soft Actuators**" (2022) **Flexible and Printed Electronics**, Volume 7, https://doi.org/10.1088/2058-8585/ac515a

A. Behzadifar, **K. Alizadeh**, M. Imani, A. Esfandiar, "**Li-ion Rechargeable Batteries: a Viewpoint from Electronic Structure**" (2023) **Submitted to the Journal of Power Sources.**

K. Alizadeh," Robust and Multifunctional Liquid-Metal Embedded Elastomers for Ultrastretchable Electronics: a Short Review" **arxiv** DOI: https://arxiv.org/abs/2104.07327

K. Alizadeh, B. Mollaei Dariani, M.R. Morovvati**" a Computational study of plastic deformation of nanoscale freestanding thin films using a hyperelastic-viscoplastic crystal plasticity constitutive model: Application to the characterization of NEMS materials and devices"** 3rd International Conference on Mechanical, Electrical, and Computer Engineering (2021). (Link to the article)

K. Alizadeh," Localized strain prediction in thin films on soft substrates bilayer systems using the combination of a plastic instability criterion and the FEM method: Application to the necking strains prediction in metallic thin films in Stretchable electronics" 3rd International Conference on Mechanical, Electrical, and Computer Engineering (2021)**.** (Link to the article)

K. Alizadeh, M R. Morovvati, B. Mollaei Dariani, "**Forming limit diagram prediction of thick anisotropic sheet metals at warm conditions using finite element modeling of hemispherical-punch stretch forming**," 3rd international conference on Mechanical Engineering, Materials, and Metallurgy (2020).

Ph.D. General Seminar: **a Review on Nanoelectronic Devices for Brain-Inspired Neuromorphic Computing** (Fall 2021)

Academic Experience
Graduate Research Assistant (Advisor: Prof. Bijan Mollaei Dariani) (January 2018 – January 2020) New Materials Forming Research Center, Department of Mechanical Engineering, Amirkabir University of Technology.

Teaching Assistant for **computer programming principles** Mechanical Engineering Department of Tabriz University (Fall 2016).
- Leading and supervising students in course materials, assignments, and exams.
- Instructor: Prof. Vahid Pouyafar.

Practical Experience

Hands-on experience on:

Solution-combustion and Solid-state Synthesis of Li-stuffed Oxides;

Ceramic Powders Processing and Characterization;

Vacuum Thin-film Deposition Techniques (Sputtering, Pulsed Laser Deposition)

Battery Electrode Preparation (Coating, Calendering, Hot-roll Pressing, etc.);

Li-Batteries Assembly (in Glovebox);

Electrochemical Characterization Tests (EIS, Battery Cycling, Cyclic Voltammetry, etc.);

2D materials Synthesis (e.g., MXene);

Nanocomposite Preparation and Wet-chemical Deposition.

Software Skills

CAE Software: Abaqus, Ansys;

CAD Software: CATIA, Solidworks;

Programming Software: Python, Python Packages for ML (Scikitlearn, Pandas, etc.);

Characterization Software: Xpert High Score, ZView;

Computational Nanotechnology Software: LAMMPS, NAMD, VMD, VESTA, Gaussian.