Mohammad Saeid Safizadeh

B.Sc. Mechanical Engineering, Sharif University of Technology

ms.safizadeh@mech.sharif.edu linkedin.com/in/ms-safizadeh/ github.com/SaeidSafizadeh Webpage

Personal Statement

With R&D experience at TOSAN, I have developed a passion for research, problem-solving, and academic growth, particularly in robotics, additive manufacturing, and controls. My project management skills include research initiation, data collection, academic review, and proposal writing. I am adaptable and possess strong teamwork abilities.

I am proficient in SolidWorks, experienced in electronics and Arduino, and have built prototypes using FDM 3D printing. Currently, I am working on an artificial neural network for full-body posture prediction during static pushing and pulling activities. I am seeking opportunities in robotics and controls and am also interested in machine learning.

Education

Sharif University of Technology *Sep 2021 – Now*
Bachelor of Science in Mechanical Engineering, GPA:18.50/20 (3.90/4.00) *Tehran, Iran*

National Organization for Development of Exceptional Talents *Graduated: Jun 2021*
Diploma in Mathematics and Physics, GPA: 19.87 / 20 *Kerman, Iran*

Research Interests

- Rehabilitation Robotics
- 3D Printing
- Path Planning
- Design and Manufacturing
- Bio Mechanics
- Machine Learning

Publications

Under Preparation

- *full body posture prediction in static pushing and pulling activities using artificial neural networks*

Honors and Awards

University Awards
Sharif University of Technology *Tehran, Iran*

- Ranked among the top 0.7% of over 140,000 participants in Iran's National University Entrance Exam (Konkur), one of the most competitive academic assessments in the country.
- Achieved 1st place in both conceptual and detailed design phases of a university competition for designing and manufacturing a chair for children with cerebral palsy.
- Member of IT and media team at **ICERS2024** international conference

Research Experiences

Posture Prediction(Prof. Navid Arjmand Prof. Navid Arjmand) *Apr 2025 – Now*
Research Assistant *Sharif University of Technology*

- **Objective:** Predict full-body posture during static pushing and pulling tasks using artificial neural networks (ANNs).
- **Approach:** Designed and built a custom data acquisition setup equipped with strain gauges to capture human force input during posture trials.
- **Development:** Processed and analyzed biomechanical data using `OpenSim` to extract posture-relevant parameters for model training.
- **Outcome:** Trained and validated a neural network model to estimate full-body postures based on measured static force inputs.

Assistive Seating for Children with Cerebral Palsy **Oct 2024 – Jun 2025**
Researcher and Designer *Sharif University of Technology*

- **Objective:** Designed a highly customizable cerebral palsy (CP) chair with enhanced freedom of movement to accommodate diverse user needs.

- **Approach:** Conducted in-depth research on required degrees of freedom and support mechanisms through literature review and user-needs analysis.
- **Development:** Created a CAD model with over 1000 components, incorporating articulated mechanisms for adjustability in headrest, backrest, and armrest.
- **Collaboration:** Worked in a multidisciplinary team and coordinated closely with two medical students to align the design with clinical and ergonomic requirements.
- **Outcome:** Successfully completed both conceptual and detailed design phases; the project was recognized as the top student-led assistive design initiative at the university.

Work Experiences

Tosan Motors **Feb 2024 – Sep 2024**
Full-Time Co-op Program Participant (7 Months) *Tehran, Iran*

Supervisor: Dr. Rahimi
Projects done:

• **Hub Balancer Conceptual Design:** Studied various balancing methods for an E-bike electromotor and developed a conceptual design for a hub balancer. Focused on researching different techniques, analyzing accelerometer sensor data, and designing a simple filtration method for better data accuracy.

• Motorcycle Testline GUI Design and Board Replacement: Replaced the control board of the motorcycle brake torque test setup and developed a **MATLAB App Designer GUI** to measure and report brake efficiency, torque, and motorcycle weight. Gained practical experience with GUI design and LabVIEW during this project.

• Managed **3D printing** of industrial design prototypes to verify fit, compatibility, and dimensional accuracy, ensuring seamless integration with mechanical components and accelerating the product development cycle.

• Performed geometric dimensioning and tolerancing (**GD&T**) on an electromotor and modeled parts using HyperPoints (STL files) using Geomagic for SolidWorks.

• Created a bill of materials (BOM) for a complete E-bike and its battery components.

Teaching Experiences

Introductory to Python *Fall 2023, Spring 2024*
Instructor: Shiva Nafari *Sharif University of Technology*

Skills

Engineering Softwares: SolidWorks, Matlab, Labview, Catia, simulink
Programming Languages: Python, C++, LaTeX
Frameworks: Geomagic for SolidWorks, Matlab App designer, Jira
Soft: Teamwork, Project management(Jira Softawre), Problem solving, Research and fast learning

Certificates

- Supervised Machine Learning: Regression and Classification(Coursera)
- Advanced learning algorithms(Coursera)
- Advanced SolidWorks(Sharif University of Technology)

Selected Projects

Robotics course projects *Fall 2024*
Instructor: Prof. Saeed Behzadipour *Sharif University of Technology*
I have completed eight projects in my robotics course, which have given me valuable insights and a deep understanding of this field. These experiences have significantly enhanced my interest in robotics.

Design and Manufacturing a Chair for Cerebral Palsy Children *Oct2024 – Jun2025*
Researcher and Designer *Sharif University of Technology*
In this project, I developed not only technical skills but also essential soft skills such as project management and teamwork. I engaged in problem-solving to design and build mechanisms that achieved the required degrees of freedom