Alireza Barekatain

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(Please check my projects at **abarekatain.github.io**)

EDUCATION

09/2018 – 06/2020 (Expected)

Master of Science, Isfahan University of Technology, Iran

Mechanical Engineering, *Cloud-Based Robotics*

- GPA (So far): **18.48/20 (4/4)**

09/2014 – 09/2018

Bachelor of Science, Isfahan University of Technology, Iran

Mechanical Engineering, **Thesis Title**: *Design and Development of a Passive Wrist and Forearm Rehabilitative Exoskeleton*

- GPA: **18.96/20 (4/4)**
- **Ranked** 2nd among 135 B.Sc. students in the Department of Mechanical Engineering

RESEARCH EXPERIENCE

07/2019 – Current

Graduate Research Assistant, *Dept. of Mechanical Engineering,* Isfahan University of Technology

MSc Thesis, Cooperative Mapping Using Multi-Robot Systems in the Context of Cloud Robotics

- Implement the mapping process using ROS and simulate using Gazebo
- Utilize Hadoop and MapReduce in Linux as a cloud platform

12/2017 – 09/2018

Undergraduate Research Assistant, *Dept. of Mechanical Engineering,* Isfahan University of Technology

BSc Thesis, Design and Development of a Passive Wrist and Forearm Rehabilitative Exoskeleton

- **Led** a team of four people, Responsible for Device Design using **CAD software packages**
- Gained practical experience in **Design Principles and Manufacturing operations** (Milling & Lathe)

02/2018 – 04/2018

Rehabilitation Robotics, *Advanced Robotics & Mechatronics Lab.*, Isfahan University of Technology

Development of an interactive interface for Rehabilitation Robotics

- Responsible for development of an **interactive interface** between KUKA Robot and patient
- Developed by **Unity3D, C#, C++**, Gained familiarity with **iiwa KUKA robot**

WORK EXPERIENCE

07/2016 – 04/2017

Independent(Indie) Game Development

Development of a 2D cognitive game targeted for android platform

- **Unity3D/C# Developer**, Game **Designer**, Collaborated in a team of three people
- **Nominated** for 'Game Design' and 'Innovation' among 133 games at 3rd Festival of Independent Game Developers (IGDF), Tehran, Iran

07/2016 – 04/2017

Graphical User Interface Programming, Rayan Tahlil Co., Isfahan Science and Technology Town, Iran

Development of a GUI for visualizing thermal parameters of hot rolling process at Mobarakeh Steel Company

- GUI **Designer**, C# **Programmer**

06/2015 – 03/2016

Game Programming, Talee ltd., London, UK

Development a Talking Robot Simulation Game

- C# **Programmer**

07/2015 – 11/2015

Virtual Lab Simulation, 1st National Fluid Mechanics Competition, Isfahan University of Technology, Iran.

Development of an application visualizing a real laboratory experiment

- C# Programmer, **Led** a team of four people
- **Awarded** 1st Place among 15 teams

SKILLS

Technical Skills & Knowledge

- *Proficiency in* Software Programming, **Game Development** and 3D Simulation, GUI Design and Development
- *Knowledge of* Data Structures and Algorithms, **Computer Networking**, Kinematics and Dynamics, Linear Algebra, **Electrical and Mechanical principles of Sensors and Actuators**
- *Experience with* **Object-Oriented Programming**, CFD, CNC Milling and Manual Lathe Machine
- *Familiar with* Electronic Circuit Design, Finite Element Analysis, **Machine Learning, Computer Vision**
- *Familiar with* **Electrical and Mechanical design principles** and CAD/CAM/CAE tools

Software Skills

- *Proficiency in* **C#**, Unity3D Game Engine, Abaqus
- *Experience with* **C++**, Visual Studio, CodeVisionAVR, Photoshop, AutoCAD, Inventor, tecPlot,
- *Familiar with* **Python**, **Ubuntu** Linux, **ROS**, Gazebo, Git, **Matlab**, **Java**, Fortran, V-Rep, Altium Designer

Language proficiency

- Persian: Native Language
- English: Fluent (IELTS Band Score: **7.5**)

SELECTED COURSES & PROJECTS

University Courses

- Fundamentals of Mechatronic Systems
- Mechanics in Robotic Systems
- Computer Programming (C++)
- Advanced Engineering Mathematics
- Numerical Methods
- Automatic Control
- Applied Electrics and Electronics
- Manufacturing Automation
- Mechanical Vibrations
- Differential Equations

Extra Courses

- Computer Vision (ongoing)
- Fundamentals of Computer Science (Online)
- Algorithms and Data Structures (Online)
- Introduction to ROS (Online)
- CCNA Routing & Switching
- Machine Learning (Online- ongoing)
- Computation Structures (Online)
- Python Programming (Online)
- Network+

Projects

- Kinematics Analysis, Trajectory Planning, and Control of a UR5 Robot using **Simulink** and **V-Rep** (Link)
- **Electronic circuit design**, assembly, and **programming** of a temperature controller device (ongoing- Link)
- 3D Printing Analysis and Simulation of a Structured Material in Abaqus
- CFD Analysis and Visualization of a 2D geometry using Finite-Volume method (Link 1, Link 2)
- Design of HVAC Systems for a residential complex
- Injection Molding Analysis and Simulation of a dog bone test sample using MoldFlow & Abaqus

HONORS & AWARDS

- Distinguished Student Award, 2nd rank among 135 undergraduate students of department of mechanical engineering at Isfahan university of technology, four consecutive years (2014 to 2018)
- **National Elite Recognition**, Iran National Organization of Elites (2018 to 2019)
- Member of exceptional talents of Isfahan University of Technology (2014 to 2019)
- Awarded merit-based admission to study at Isfahan University of Technology for graduate
- program without entrance exam (2018)
- Ranked **197th (Top 0.2%)** among 191466 students in National University Entrance Exam (2014)

PERSONAL INTERESTS & ACTIVITIES

- Piano & Taar (a traditional instrument)
- Volleyball