MOHAMMAD **ALI GHORBANI**

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An Electrical and Computer Engineer with a solid industrial and academic background; Working on mixed-cation perovskite solar-cells as MSc work; Developed an ultrasonic mass levitation system as BSc project. 5 years of experience as a Software Engineer, focused on Deep Learning and Data Science implementation and optimization, Image Processing/Machine Vision, Low-Level hardware programming, Parallel Computing Algorithms and Web/Native-Desktop Application Development.

EDUCATION

Sep 2020 – Now (Expected Aug 2022)

MSc in Electrical Engineering, KN. Toosi University of Technology, Tehran; Iran

Thesis Title: A novel all spin-dip technique to fabricate a mixed-cation perovskite absorber layer in a high-performance solar cell. Advised by Professor Alireza Sahehi in Semiconductor Devices Lab of ECE Department.
Simulation Software: SILVACO TCAD, COMSOL Multiphysics, Siesta Transiesta
Overall Score (so far): **16.00 out of 20**

Sep 2015 – Sep 2020

BSc in Electrical Engineering, Amir Kabir University of Technology, Tehran; Iran

Final Project: Development of an Electronic system for mass Levitation and transmission by Acoustic Waves; github.com/maghorbani/LevController; Advised by Professor Hassan Kaatuzian in Photonic Research Lab of EE Department.
Software and Skills: MATLAB, SIMULINK, ALTIUM Designer, KICAD, Embedded Solutions (Designing and Programming), ADS
Overall Score: **14.48 out of 20**

TEACHING EXPERIENCE

Fall 2021

TA; MSc Course: Theory and Technology of Semiconductor Devices, KN. Toosi University of Technology, Tehran; Iran

Instructor: Dr Mostafa Shooshtari
Duties: lecturing, grading, helping students doing course project.

Fall 2020

Workshop Tutor; BSc Course: Advanced Programming, Amir Kabir University of Technology, Tehran; Iran

Instructor: Dr Amir Jahanshahi
Duties: lecturing 5 sessions titled "Full-Stack Web Development with JavaScript"

JOB EXPERIENCE

Aug 2021 – Nov 2021

Software Engineer, IUST Quad-Copter Team, Tehran; Iran

- Optimizing Machine Vision Algorithms to be faster and more efficient (C++/YOLOv5)
- Developing embedded core (Jetson nano board) with ROS (Robot Operating System) (C/C++ and Python)
- Contribution in communication module (based on ESP module) development (C, AltiumDesigner)
- Instructing version control (git) to other team members
- Handling CI/CD in Linux servers

Sep 2019 – Sep 2021

Software Engineer, ARKA Tech, Tehran; Iran

ARKA Tech is a medium size company active in IOT, Artificial Intelligence, Robotics and Software Engineering

- Boosting speed and performance for CNN (Deep learning) and ML projects (C++, Python, Torch, TensorFlow)
- Developing low-level kernels for Nvidia GPUs (CUDA)
- Implementing Image-Processing algorithms (C++, Python)
- Developing enterprise native desktop apps (C++/Qt5)
- Developing web applications (JS, React, Express, Python, Django, HTML/CSS)

Oct 2017 – Sep 2019

Full-Stack Web Developer, TPulse, Tehran; Iran

TPulse was a team of web developers located in The IT Office of Amir Kabir University of Technology and then moved to AZARAKHSH accelerator.

- Developing plugins for Wordpress(PHP)
- Database Design
- Developing CRUD web apps (PHP, Python, JS)

INTERESTS

- Machine Learning/Deep learning
- Computer Vision/Image Processing
- GIS/Navigation/Remote Sensing
- OS/Embedded OS
- Nano/Micro Electronics
- Solar Cells
- Gas/Optical Sensors
- Quantum computing

SKILLS

- Nano/Micro Fabrication Lab
- PCB Design – ALTIUM/KICAD
- MATLAB/SIMULINK
- Programming – C/C++/Python/JS
- Hardware Level Programming – C/C++/CUDA
- Torch/TensorFlow/OpenCV/Yolo
- Deep learning (CNN)