

# 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. 4 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](https://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)

## RESEARCH 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)