

# Mohammadreza Arani Bidhendi

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Github  
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## Education

<b>University of Tehran—GPA: 3.76(17.37/20)</b> <i>Master of Electrical Engineering in Telecommunication in field and wave</i>	Sep. 2021 – Present <i>Tehran, Tehran, Iran</i>
<b>University of Tehran—GPA: 3.70 (17.36/20)</b> <i>Electrical Engineering</i>	Sep. 2017 – Sep. 2021 <i>Tehran, Tehran, Iran</i>

## Research Interests

### Optimization

*Convex & Non-Convex Optimization, Numerical Methods, Array Opt., Genetic Algorithm, PSO*

### RF Systems Design

*RF Sensors Design & Implementation, Microwave modules Design*

### Remote Sensing

*Remote Sensing, Compressive Sensing*

### Block-chain Development

*Web-app. & IOT (MQTT) , Block-chain Implementation , Crypto-Currency related Opt. and Analysis*

### Neural Networks & Machine Learning

*Application-based Model Design & Implementation AI with Neural Networks & Machine Learning Models and Techniques*

## Research Publications

Smart microgrid educational laboratory: An integrated electric and communications infrastructure platform – M. Abedini, T. Vahabzadeh, S.-A. Ahmadi, M.-H. Karimi, H. Manoochchri, A.-H. Nazeri, M. Karami, **M. Arani**, F. Aminifar, and M. Sanaye-Pasand2020

## Research Experience

**System Design & Simulation App for Optimization over RF Sensor Parameters**Dec., 2021 – Present  
*University of Tehran**Tehran, Tehran, Iran*

- Research over various RF Sensor array structures and Implementations including Co-Prime and Nested Arrays, Virtual Arrays, Uniform Linear and Circular Arrays
- Implementation of an Optimization framework using GD and Convex Opt. to find Sensor parameters given a desired Array Factor & physical constraints
- Implementation of the MATLAB UI to interact with the user and analyze the results
- Reaching maximum accuracy in targeting desired zones on demand when dealing with sensitive tissues like a person brain

### RF Sensor Design Literature Review

Mar., 2021 – Sep., 2021

*University of Tehran*

*Tehran, Tehran, Iran*

- Design and Simulation of different RF Sensor types at High Frequency
- Design experience in MATLAB and HFSS while utilizing ADS for substrates-related technologies and Impedance Matching issues

### Power Generators state Monitoring Implementation in Power Systems Lab

Jun., 2019 – Sep., 2019

*University of Tehran*

*Tehran, Tehran, Iran*

- Design and configuration of a Mesh Xbee network in a System Monitoring Implementation Project

- Send & Read and Decode Serial Information from RS-485 port associated with the JAM300 three-phase Meter Device using MAX485 Module
- Design & Implementation of a Custom-Module to automate Monitoring from three-phase meters and Disp. RX Info. over a Monitor using a Raspberry-Pi Module & an Xbee end-point

### *Language Skills*

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<b>TOEFL</b>	5th Aug., 2023
<i>Writing: 26, Speaking: 21, Reading: 27, Listening: 27</i>	<i>Overall: 101</i>
<b>GRE</b>	16th Oct., 2023
<i>Verbal: 154, Quantitative: 165, Writing: 4</i>	<i>Overall: 323</i>

### *Other Experience*

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<b>TA-ship of Convex Optimization Course</b>	Jan., 2023 – Jul., 2023
<i>Held Weekly TA classes to solve and answer students' questions</i>	
<ul style="list-style-type: none"> <li>• Contribution to students' learning using MATLAB &amp; Python Simulations</li> </ul>	
<b>TA-ship of Engineering Mathematics Course</b>	Sep., 2019 – Jan., 2020
<i>Solve &amp; Answer students' questions in PDE (Partial Differential Equation) subject</i>	
<ul style="list-style-type: none"> <li>• Contribution to students' learning using MATLAB Simulations</li> </ul>	
<b>TA-ship of Electrical Engineering Fundamentals Course</b>	Sep., 2019 – Jan., 2020
<i>Weekly Hands-on TA classes to Implement Simulated Circuits &amp; use Measurement Devices</i>	
<ul style="list-style-type: none"> <li>• Contribution to the Students' Learning using MATLAB &amp; Cadence Circuit Simulations</li> </ul>	
<b>TA-ship of Electrical Machines and Power Electronic Course</b>	Sep., 2019 – Jan., 2020
<i>Held Weekly TA classes to answer the Students' questions</i>	
<ul style="list-style-type: none"> <li>• Contribution to the Students' Learning using MATLAB's Simulink Simulations</li> </ul>	
<b>TA-ship of Intro. to Comp. Programming Course</b>	Sep., 2020,2021 – Jan., 2021,2022
<i>Weekly Hands-on TA classes to Implement Lab. Instructions in C</i>	
<ul style="list-style-type: none"> <li>• Contribution to the Students' Learning by providing them .c programs and examples</li> </ul>	
<b>TA-ship of General Physics 2 Course</b>	Sep., 2019 – Jan., 2020

### *Awards & Honors*

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<b>Ranked Top 0.3% in Uni. Entrance Exam (Konkur) in the Country</b>	2017
<i>Assessment and Education Organization</i>	
<b>Acquisition of University Admission with brilliant talent quota for Master's Program</b>	2021
<i>University of Tehran</i>	
<b>Acquisition of Certificate for Successfully Completing QML Course</b>	2023
<i>University of Sharif</i>	
<b>Newly Accepted Students University Tour Guide</b>	2019
<i>Volunteered to provide an explan. about the Uni. &amp; its Administrative bureaucracy system to newly accepted stud.</i>	

### *Specialized Skills*

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**Programming Languages:** Python, MATLAB (Advance), C, Latex (Intermediate)  
**Softwares:** HFSS (Intermediate), ADS (Beginner), PsPice (Intermediate), COMSOL (beginner)  
**Spoken Language:** Persian(Native), English(Advance&Fluent), French, German, Arabic(beginner)  
**Web Programming:** PHP, JavaScript (Intermediate), NGINX, Apache (Intermediate)  
**Distributed and Virtual Systems:** Docker (beginner), Virtual Machines (Intermediate)  
**OS:** Linux (Intermediate), Windows (Intermediate)  
**Network:** Cisco Router& Switches , Network Protocols (Intermediate), Net+ & CCNA (Advance)  
**Social Skills:** Team-working Abilities, Tendency to Share (High), Appreciate Deep-Work, Fast-Learner

### *Other Interests*

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**Athletics:** Ping Pong (High School team captain)  
**Musical:** Studied Classical Theoretical Music and also a beginner Guitar Player  
**Hobbies:** RTS Games, Solving Real-World Problems

### *Selected Courses*

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|---|--|--|--|
| • <b>Machine Learning</b> –<br>20/20–1st in the<br>class–2020     | • <b>Microwave I</b> –<br>19.7/20–2nd in<br>the class–2020                                     | • <b>Convex<br/>Optimization</b> –<br>18/20–3rd in the<br>class–2022 | • <b>Linear Control<br/>System</b> –<br>19.5/20–2nd in<br>the class–2019 |
| • <b>Numerical Cal-<br/>culus</b> –20/20–1st<br>in the class–2020 | • <b>Numerical<br/>Methods in Elec-<br/>tromagnetism</b> –<br>18.1/20–2nd in<br>the class–2022 | • <b>Math I</b> –20/20–<br>1st in the<br>class–2017                  | • <b>Engineering<br/>Math</b> –20/20–1st<br>in the class–2018            |