Mohammadreza Arani Bidhendi

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Tehran, Tehran, Iran

Github
Website
Email Address

Education

University of Tehran—-GPA: 3.76(17.37/20) Sep. 2021 – Present
Master of Electrical Engineering in Telecommunication in field and wave *Tehran, Tehran, Iran*

University of Tehran—-GPA: 3.70 (17.36/20) Sep. 2017 – Sep. 2021
Electrical Engineering *Tehran, Tehran, Iran*

Research Interests

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

RF Systems Design
RF Sensors Design & Implementation, Antenna Design, Microwave modules Design

Remote Sensing & High-Frequency Imaging
Remote Sensing, Microwave and High-frequency Imaging, Target Localization, Direction of Arrival Estimation

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

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

Wireless Communication
Wireless Communication MI-MO systems, Antenna Design, Standard Dev. & Simulation for future Cellular Network Gen.

Quantum Computation
Quantum Supremacy Analysis, Variational QC, Ansatz Design & Implementation, Quantum Machine Learning (QML)

Research Publications

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

Research Experience

System & Array Optimization of RF Movement Sensors to Track Vehicles Dec., 2021 – Present
University of Tehran *Tehran, Tehran, Iran*

- Research over various Antenna 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 Array parameters given a desired Array Factor & physical constraints
- DoA Est. with various Algo. including sparse Rec. Algo., MUSIC/Beam-forming, & R-D analysis
- Implementation of the MATLAB UI to interact with the user and analyze the results

Antenna Design for Autonomous Vehicles Mar., 2021 – Sep., 2021
University of Tehran *Tehran, Tehran, Iran*

- Design and Simulation of different antenna types including Leaky-wave, Slotted SIW @ 77GHz
- Antenna Design experience in MATLAB and HFSS while utilizing ADS for substrates-related technologies and Impedance Matching issues
- Comparison of different antenna types in terms of Autonomous vehicle sensors

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

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

Other Experience

TA-ship of Antenna Course Jan., 2023 – Jul., 2023
Held TA classes to solve and answer students' questions

- Contribution to students' learning using MATLAB Simulations

TA-ship of Convex Optimization Course Jan., 2023 – Jul., 2023
Held Weekly TA classes to solve and answer students' questions

- Contribution to students' learning using MATLAB & Python Simulations

TA-ship of Engineering Mathematics Course Sep., 2019 – Jan., 2020
Solve & Answer students' questions in PDE (Partial Differential Equation) subject

- Contribution to students' learning using MATLAB Simulations

TA-ship of Electrical Engineering Fundamentals Course Sep., 2019 – Jan., 2020
Weekly Hands-on TA classes to Implement Simulated Circuits & use Measurement Devices

- Contribution to the Students' Learning using MATLAB & Cadence Circuit Simulations

TA-ship of Electrical Machines and Power Electronic Course Sep., 2019 – Jan., 2020
Held Weekly TA classes to answer the Students' questions

- Contribution to the Students' Learning using MATLAB's Simulink Simulations

TA-ship of Intro. to Comp. Programming Course Sep., 2020,2021 – Jan., 2021,2022
Weekly Hands-on TA classes to Implement Lab. Instructions in C

- Contribution to the Students' Learning by providing them .c programs and examples

TA-ship of General Physics 2 Course Sep., 2019 – Jan., 2020

Awards & Honors

Ranked Top 0.3% in Uni. Entrance Exam (Konkur) in the Country 2017
Assessment and Education Organization
Acquisition of University Admission with brilliant talent quota for Master's Program 2021
University of Tehran
Acquisition of Certificate for Successfully Completing QML Course 2023
University of Sharif *100/100*
Newly Accepted Students University Tour Guide 2019
Volunteered to provide an explan. about the Uni. & its Administrative bureaucracy system to newly accepted stud.

Specialized Skills

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

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

- **Machine Learning–** 20/20–1st in the class–2020
- **Numerical Calculus–**20/20–1st in the class–2020
- **Microwave1–** 19.7/20–2nd in the class–2020
- **Numerical Methods in Electromagnetism–** 18.1/20–2nd in the class–2022
- **Convex Optimization–** 18/20–3rd in the class–2022
- **Math1–**20/20–1st in the class–2017
- **Linear Control System–** 19.5/20–2nd in the class–2019
- **Engineering Math–**20/20–1st in the class–2018

References

Reza Faraji Dana
Numerical Methods in Electromagnetism, Field and Wave
- Title: Professor ,Email Address: reza@ut.ac.ir, PhoneNumber: +982182084206Faculty: Electrical & Comp. Dep. @ UT

Mahmood Shahabadi
Electromagnetism, TA-ship at Electrical Engineering Fundamentals, Advanced Electromagnetism
- Title: Professor, Email Address: shahabad@ut.ac.ir PhoneNumber: +982182084923Faculty: Electrical & Comp. Dep. @ UT

Mahmood Kamarei
Microwave 1, Communication Circuits, Communication Circuits Laboratory, Seminar, Undergraduate's Project
- Title: Professor ,Email Address: kamarei@ut.ac.ir, PhoneNumber: +982182084354Faculty: Electrical & Comp. Dep. @ UT

Saeed Akhavan Bahabadi
Blind Source Separation, Array Processing, Master's Project
- Title: Assistant Professor ,Email Address: s.akhavan@ut.ac.ir, PhoneNumber: +982182085074Faculty: Electrical & Comp. Dep. @ UT