MohammadReza Ebrahimi

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Education

University of Tehran, Tehran, Iran — 2014 - 2017
Master of Science in Communication Systems

- **Average: 18.85/20** (Ranked first)
- Thesis title: *Joint channel coding and medium access control in machine-to-machine communication.* Defended (20/20)
- Advisors: Farshad Lahouti, PhD.
  Maryam Sabbaghian, PhD

University of Tehran, Tehran, Iran — 2010 - 2014
Bachelor of Science in Electrical Engineering

- **Average: 17.94/20**
- Thesis title: *Indoor Positioning System Using Wi-Fi Fingerprinting Method.*
- Advisor: Farshad Lahouti, PhD.

Research Experience

Center for Wireless Multimedia Communications (WMC) — Sep. 2013 - Sep. 2016
University of Tehran, Tehran, Iran
Research Assistant

Under the supervision of Dr. Lahouti, I conducted research on two general fields: indoor positioning, and random access scheme design using factor graphs. During the *Digital Venture Design* course in WMC, we defined the business plan of a location-aware marketing tool for shopping malls, which later incorporated into a business product (*InJust*).

Work Experience

Sarveen Technologies Inc. — Sep. 2016 - Present
Science and Technology Park, Tehran, Iran
Head of Indoor Positioning Team

Sarveen Technologies Inc. is a young but well-funded innovative company specializing in indoor positioning, activity recognition, and IoT technologies.

As the head of Indoor Positioning Team, I lead the development of core algorithms to create a robust and adaptive positioning solution used in a wide range of location-aware Sarveen products (such as smart shopping service, elderly care system, and livestock health monitoring). I design the necessary tools and software for data collection, performance assessment, and project setup automation. In addition, I have implemented numerous algorithms, from classification and clustering to decision fusion methods like particle filter, Viterbi, and BCJR. Furthermore, I actively cooperate in the venture design of *InJust*, a location-aware marketing service for shopping malls.

Publication

M. Ebrahimi, F. Lahouti and V. Kostina, "Coded random access design for constrained outage," *2017 IEEE International Symposium on Information Theory (ISIT)*, Aachen, 2017, pp. 2732-2736

Presentation

2017 IEEE International Symposium on Information Theory (*ISIT*) — June 2017
Aachen, Germany

Honors and Awards

Ranked 1st among all communication system students
M.Sc. degree, University of Tehran

M.Sc. thesis nominated for the ECE school best dissertation award
University of Tehran, Tehran, Iran. (Winners TBA)

Excellent Student M.Sc. Admission Award
B.Sc. degree, University of Tehran
Entrance examination waived as an award for being among the top-10% students (Ranked 6^{th} among 123).

Ranked 194th among 277,814 participants
In the nationwide university entrance examination in Mathematics and Physics fields for B.Sc.

Teaching Experiences

Advanced Theory of Communications, University of Tehran — Spring 2017
Chief Teacher Assistant
Instructor: Maryam Sabbaghian, PhD

Communication Systems II, University of Tehran — Fall 2016
Chief Teacher Assistant
Instructor: Amir Masoud Rabiei, PhD

Wireless Communication, University of Tehran — Spring 2016
Chief Teacher Assistant
Instructor: Ali Azam Abbasfar, PhD

Mathematics I, University of Tehran — Fall 2012
Teacher Assistant
Instructor: Mohammadreza Kolahdouz, PhD

Selected Courses

Pattern Recognition: 19/20
Wireless Communication: 20/20
Advance Theory of Communications: 19.9/20
Stochastic Processes: 17.04/20
Linear Algebra: 20/20
Information Theory: 18.5/20
Wide Band Communication: 19.5/20
Coding Theory: 17.3/20
Wireless Multimedia Comms.: 18/20
Digital Signal Processing: 18.3/20

Selected Projects

Design and Implementation of an Adaptive Indoor Positioning System
Sarveen Technologies Inc.

> Using BLE/WiFi RSSI, accelerometer, magnetometer, gyroscope, and map information as inputs, the implemented algorithm derives functional features from each source and combines them together to cope with inaccuracies in the inputs. The algorithm adapts to the absence of any source and the variants between different devices and sensors. The algorithms are implemented both offline and online using Matlab and Java (Android).

Designing a GUI Test Bench for Indoor Positioning Algorithms
Using Matlab GUIDE, Sarveen Technologies Inc.

Design and Implementation of a Wireless Setup for Text Communication
Using AVR micro-controller, touchpad and RF module, *Microprocessor course*

Path Finder Robot
Using AVR micro-controller, *General Workshop*

Direction of Arrival Estimation
Using Maximum Likelihood method, *Detection and Estimation Theory course*

Implementing a Verilog Code Parser Using C++
Object-Oriented Electronic Modeling course

Radio Access Technology Selection In Heterogeneous Networks
Using MADM method, *Cellular Networks course*

Survey on Anti-Jamming Communication Methods
Wide Band Communication course

Information Theoretic Analysis of Physical Layer Security in Wireless Networks
A secrecy graph approach, *Information Theory course (Sharif University of Technology)*

Design, Simulation, Implementation and Measurement of 4.5 GHz Pencil Beam Microstrip Array Antenna
Antenna lab

Language Skills

Persian: Native
English: Fluent

- **TOEFL iBT: 106/120** Oct. 2016
  Reading: 29 Listening: 30 Speaking: 22 Writing: 25

Software

Programming Languages:
Matlab(*proficient*), Python(*familiar*), C/C++(*familiar*), Java(*familiar*), Verilog(*familiar*)

Professional Software and Toolboxes:
Android programming (Android Studio), Matlab GUIDE, CodeVisionAVR, Wireshark, NS2, Proteus, Quartus, ModelSim, FL Studio (music production), LaTeX

References

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