Kasra Madayeni Avval

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Personal Details

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Education

B.Sc. in Electrical Engineering (major in Communications) **Sept. 2012 - Feb. 2017**
ECE Department, Faculty of Engineering, University of Tehran Tehran, Iran
GPA: **17.17/20 (3.70/4)** via **143** Credits
Last two-year GPA: **17.30/20** via **73** Credits

Diploma in Mathematics and Physics **2008-2012**
*Allame Helli High School (**N**ational **O**rganization for **D**evelopment of **E**xceptional **T**alents)* Tehran, Iran
GPA: **19.75/20**

Research Interests

- Wireless Communications
- Digital Communications
- Computer Networks
- Communication Networks
- Information and Coding Theory
- Signal Processing

Honors

- Exempted from M.Sc. University Entrance Exam as an Exceptional-Talent Student **2016**
- Ranked 478$^{\text{th}}$ among 250,000 Participants in Iranian National University Entrance Exam **2012**

Publication

Conference Paper **2016**

*A. Shahanaghi, A. Abbasfar, **K. Madayeni**, "Fairness Analysis of MAC Protocols in MIMO Networks Using Stochastic Geometry." at the 10th IEEE International Conference on Advanced Networks and Telecommunications Systems. (IEEE ANTS 2016)*

Volunteer Experiences

- **Vice-Chair of the IEEE Student Branch at University of Tehran** **2015-2016**
  - *Entitled as the IEEE Iran Section **Best Student Branch** in Iran*
- **Chair of the Electrical Engineering Scientific Association at University of Tehran** **2015-2016**
  *Entitled as the **Best Scientific Association** in:*
  - *"Popularization of Science" among more than 200 Associations in Iran*
  - *"Preparing the Individuals to Entering the Profession" among 60 Associations in University of Tehran*
  - *"Information Technology" among 60 Associations in University of Tehran*

  *Entitled as the **Outstanding Scientific Association** in Iran*

Notable Academic Projects

- **Investigation of Cloud Computing and its Combination with SDN** **Ongoing - Fall 2016**
  Analysis of Cloud Computing and study of its application in the controller of the SDN Thesis Project
- **High-Performance Computing using GraphBLAS** **Ongoing - Fall 2016**
  Using sparse matrices instead of graphs in order to analyze a complex mobile phone network Dr. Behnam Bahrak
- **Design and Implementation of Transmitter/Receiver Systems** **Spring 2016**
  Design of TX/RX systems with various digital modulations using MATLAB Digital Communications Lab
- **Simulation of MIMO Systems** **Spring 2016**
  Investigation of the probability of error for different STBC codes using MATLAB Wireless Communications
- **Design of a Transmitter/Receiver System via OFDM Modulation** **Spring 2016**
  Investigation of the effects of peak to ratio on bit error probability using MATLAB Wireless Communications
- **Design of Filters and Use them as a Noise-Cancelling in a Sound** **Spring 2016**
  Design of various FIR and IIR filters using MATLAB and fdatool Digital Signal Processing
- **Design of a Transmitter/Receiver System on USRP Boards** **Fall 2015**
  Design of a complete transmitter/receiver system using Simulink and USRP boards Software Defined Radio Lab
- **Implementation of a Social Network** **Fall 2015**
  Design of a graphical social network, similar to LinkedIn, using C++ and Qt Advanced Programming
- **Setting up of a Wireless Network** **Spring 2015**
  Establish of a wireless network and examine of Ad-hoc on Demand Distance Vector using NS2 Computer Networks
- **Design of an Electronic Safe Lock** **Fall 2014**
  Design, simulate, and build of a lock system for a safe using Proteus, CodeVision, and AVR Microprocessors
- **Design of a Digital Oscilloscope** **Fall 2014**
  Design and implementation of a digital oscilloscope using FPGA Digital Logic Design Lab

Internship

Practical Implementation of a Wired Communication System **Summer 2015**

During my internship period, some friends of mine and I participated in providing a lab instruction for the *Digital Communications Lab* in our ECE department. In this work, first, we simulated different linear digital modulations such as PAM, PSK, and QAM, and non-linear modulations such as DPSK and FSK with their corresponding coherent and non-coherent detection methods. Then, we prepared a wired sound-based communication platform using sound cards of two computers each of which acts as the transmitter and receiver. After applying the source and channel coding, we used our simulated modulation schemes in order to send bit streams from the transmitter, and by obtaining the synchronization and detection in the receiver, we computed the bit error rate.

Score: 20/20

Selected Courses

- Computer Networks: **18.9/20**
- Engineering Mathematics: **17.6/20**
- Engineering Probability and Statistics: **17.8/20**
- Advanced Programming: **18.16/20**
- Microprocessors I: **20/20**
- Software Defined Radio Lab: **19/20**
- Digital Communications: **19.1/20**
- Digital Communications Lab: **19.6/20**

Computer and Technical Skills

- Programming Languages:
  - **C/C++, MATLAB, LaTeX**: Expert
  - **Java, Python, NS-2**: Familiar
- Softwares:
  - **Wireshark, Proteus, Altium Designer, CodeVision AVR, Microsoft Office**: Expert
  - **Quartus, ModelSim, Multisim, ADS, Hspice, Pspice**: Familiar
- Web Development
  - **HTML, CSS**: Professional
  - **JavaScript, PHP**: Familiar

Teaching Assistantship

- **Signals and Systems**, instructor: Dr. Amir Masoud Rabiei
- **Engineering Probability and Statistics**, instructor: Dr. Ali Olfat
- **Analog Communications**, instructor: Dr. Sadaf Salehkalaibar
- **Electronics I lab**, instructor: Ms. Hourieh Khodkari
- **Electronics II**, instructor: Dr. Samad Sheikhaei
- **Electronics III**, instructor: Dr. Omid Shoaei
- **Microprocessors I**, instructor: Dr. Omid Fatemi

Language Skills

- Persian: Native
- English: Fluent
  - TOEFL iBT: **100/120** (Reading: **25** , Listening: **27** , Speaking: **22** , Writing: **26**)
  - GRE GENERAL: **316/340** (Quantitative: **167** , Verbal: **149** , Writing: **3.5**)
- Russian: Familiar

Hobbies

- Watching TV Series and Movies
- Listening to Music
- Hiking and Jogging
- Soccer

References

- **Dr. Ali Olfat**, Associate Professor of Electrical Engineering, University of Tehran
- **Dr. Amir Masoud Rabiei**, Assistant Professor of Electrical Engineering, University of Tehran
- **Dr. Vahid Shah-Mansouri**, Assistant Professor of Electrical Engineering, University of Tehran
- **Dr. Behnam Bahrak**, Assistant Professor of Electrical Engineering, University of Tehran
- **Dr. Sadaf Salehkalaibar**, Assistant Professor of Electrical Engineering, University of Tehran
- **Dr. Omid Fatemi**, Assistant Professor of Electrical Engineering, University of Tehran