Mojdeh Karbalaee Motalleb | Curriculum Vitae
– **Tehran University– Department of Electrical and Computer Engineering**

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Education

- **PHD** **2017–2022 (Expected)**
  Tehran University *Tehran*
  - **Major: Communication Systems and Network** Total GPA: 18.85/20 via 19 credits
- **Master of Science** **2015–2017**
  Amirkabir University of Technology *Tehran*
  - **Major: Communication Systems** Total GPA: 17.13/20 via 32 credits
- **Bachelor of Science** **2011–2015**
  Amirkabir University of Technology *Tehran*
  - **Major: Communication** Total GPA: 18.28/20 via 143 credits
  - **Minor: Mathematics** Total GPA: 18.42/20 via 50 credits
- **High School** Total GPA: 19.73/20 **2007–2011**
  Farzanegan1(NODET) *Tehran*

Honors

- **Ranked 7st** in Electrical Engineering,**Ranked 5st** in Communication Group, among more than 35 students, Amirkabir University of Technology, Tehran, Iran [Fall 2011]
- **Ranked 12st** in Olympiad of Electrical Engineering
- **Acceptd** for Internship as a researcher at Imperial College of London
- **Ranked 412st** in university entrance exam (Konkour), among more than 300,000 participant [Summer 2008]
- **Exempted** from university entrance exam for M.Sc. program and offered M.Sc. program in Communication System in **Amirkabir** University of Technology
- **Permitted to study Mathematics as a minor** (This permission is only awarded to talented students, introduced by the Exceptional Talents Office
- Granted admission from **Talented Student Office** of Amirkabir University of Technology for graduate study
- Accepted to study at National Organization for Development of Exceptional Talents (**Nodet**) school

Research Interests

- Wireless Systems
- Resource Allocation
- Deep Learning
- Reinforcement learning
- Cryptocurrency and Block chain
- Data Science
- Computer Programming
- IoT-Sigfox, LoRa, NB-IoT

Some Courses

o Introduction to CryptoCurrency	18.25	o Advanced Digital Signal Processing	18
o Convex Optimization	19.1	o Stochastic Processing	18.11
o Cellular Network	20	o Broad band	17.10
o Data Network	19	o Information Theory	17.5
o Neural Network and Deep Learning	19	o Computer Programming	20
o Coding	17	o Engineering Mathematics	18.6
o Resource Allocation	16.86	o Advanced Systems Programming	19
o Statistical Learning	16.6	o Reinforcement Learning	Not finished
o Digital Signal Processing	17.7		

Teaching Experience

o Teaching Assistant for **Computer Programming** Undergraduate Course   **Fall 2013**
  - Instructor: Dr.Taheri

o Teaching Assistant for **Numerical Analysis** Undergraduate Course   **Spring 2014**
  - Instructor: Dr.Taheri

o Teaching Assistant for **Computer Programming** Undergraduate Course   **Fall 2015**
  - Instructor: Dr.Jahanshahi

o Teaching Assistant for **Communication I** Undergraduate Course   **Fall 2015**
  - Instructor: Dr.Emadi

o Teaching Assistant for **Advanced Programming** Undergraduate Course   **Spring 2016**
  - Instructor: Dr.Jahanshahi

o Teaching Assistant for **Computer Programming** Undergraduate Course   **Fall 2016**
  - Instructor: Dr.PourAhmadi

o Teaching of **Software Defined Radio Lab with MATLAB** Undergraduate Course   **Fall 2018**
  - Main Instructor: Dr.Shahmansouri

o Teaching (Private) for **Mathematics**

Academic Projects

o Signal Processing of digital modulation using Matlab and simulink
o Testing (Throughput, trace-route, ...) of different protocols such as ICMP(using RAW socket), TCP, UDP,...
  - Implementing by C++ in ubuntu
o Determine Color Palette and Clustering Main Colors of any image
  - Implementing Unsupervised Learning Using Python(opencv,skitilearn, PIL) and Javascript(canvas) [Winter 2019]
o Object Segmentation
  - Implementing Deep learning methods such as CNN, Using Python (Keras and Tensorflow) [Fall 2018]
o Edge Detection and image processing
  - Using Python (Opencv and PIL) [Fall 2018]
o Processing a narrow band IoT protocol using SDR dongle
  - Obtaining different layer of protocol using Matlab and Simulink [Fall 2018]

- Simulation of **Pendulum Waves** by C++
  - Supervisor: **Dr.Taheri** [Fall 2012]
- **Design a Controller for F16's Airplane :** Linear Control Systems Project, Simulated by Matlab,
  - Supervisor: **Dr.Talebi** [Fall 2013]
- Simulation of a **Traffic Light:** Logic Circuits Project, Simulated by Proteus
  - Supervisor: **Dr.Rezie** [Spring 2013]
- **Coding , Modulating and Transmitting Sound, PM Modulation, Simulating With Noise and Recieving,Demodulating and Decoding:** Communication Systems 2 Project, Simulated by Matlab
  - Supervisor: **Dr.AminDavar** [Spring 2014]
- Design **Amplifiers Circuits such as Differential amplifier** by Orcad(PSpice) and HSpice [Spring 2014]

- Design **LNA (Low Noise Amplifier)** by ADS
  - Supervisor: **Dr.Abdipour** [Fall 2014]
- Simulation of **Sound Wave** when we have absorbant and obstacles by Python in Qt Designer
  - Supervisor: **Dr.Jahanshahi** [Spring 2015]
- Simulation of **indoor localization system with Access Point Selection and Signal Reconstruction** with Matlab
  - Supervisor: **Dr PourAhmadi** [Spring 2016]
- Simulation of **Communication System** with Matlab
  - Supervisor: **Dr Amindavar** [Spring 2016]
- Simulation of Precoding and detection in **Multi User MIMO** [Spring 2016]
- Resource Allocation for CRAN system [Fall 2016-Summer 2017]
- Simulation of Narrow Band System using SDR dongle as a receiver with matlab [Fall 2017]
- Comparing different Standard of IoT [Winter 2018]

Publications

- Accepted conference:
  - m karbalaee motalleb, a kabiri, mj emadi, "Optimal Power Allocation for Distributed MIMO C-RAN System with Limited Fronthaul Capacity," in ICEE 2017
- Submitted for ICC 2020:
  - m karbalaee motalleb, v shahmansouri, s nouri naghadeh, "Joint Power Allocation and Network Slicing in an Open RAN System.," arXiv preprint arXiv:1911.01904 (2019)

B.Sc project

Under the supervision of **Dr.Emadi**
- On the **Capacity** of **Molecular** Communication over the **AIGN** Channel

M.Sc project

Under the supervision of **Dr.Emadi**
- Distributed cooperation to enhance performance of **Cloud Radio Access Netework**

PHD project

Under the supervision of **Dr.Shahmansouri**
- VNF placement and Network slicing in Open Ran system

Experience

- Work in Parsnet Company as a researcher (IoT Company) (Fall 2017 since Fall 2018)

- I was in the Research and Develop department of Parsnet company, I have done signal processing project on LPWAN signals such as Sigfox and LoRa. Our group has obtained physical, MAC and Network layer of Sigfox protocol using matlab and simulink
- Work in RMI Company as a backend developer (python) (software Company) (Fall 2018 since Spring 2019)
  - I am a python developer in this company. I have done image processing, machine and deep learning projects such as segmentation of an image by CNN methods and clustering the image based on color palettes
- Work in Sepehran Company as a researcher (communication system) (Summer 2019 since now)
  - I am in the Research and Develop department of Sepehran company, I have done signal processing project on different digital modulation to transmit and receive signals in high frequency with high rate

Computer skills

Programming Languages
- C++
- Python
  - Keras
  - Tensorflow
  - Pytorch (Familiar)
  - Opencv
  - PIL
  - Tornado
  - Numba
  - Numpy
  - Matplotlib
  - Cython
  - Sklearn
  - Skimage
  - Pandas
  - Os
- MFC (familiar)
- Matlab (Code and Simulation)
- VHDL (familiar)
- R (familiar)
- Javascript
- Node js(familiar)
- AngularJs(familiar)

Software tools
- Qt Designer(familiar)
- ADS
- Orcad(PSpice)
- Proteus
- Visual Studio
- HSpice(familiar)
- OPNET(familiar)
- Xilinx ISE Design Suit(familiar)
- GNU Radio using SDR dongle
- LaTeX

O.S and General Softwares
- Microsoft Windows
- Linux
- Mac
- Microsoft Office

Language Skills

- **Persian**   Native
- **English**   Fluent
- **French**   Familiar *Just start learning*
- **Arabic**   Familiar

Hobby

- Cycling
- Playing Guitar
- Studying English and French

- Solving geometric problems
- Driving
- Swimming

References, Further information, and Proofs are available upon Request