

Aydin Roozbeh

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Education

Bachelors of Science in Electrical Engineering

Amirkabir University of Technology (Tehran Polytechnic)

Cumulative GPA: **GPA: 16.88/20**

Tehran, Iran

Sept. 2020 – Aug. 2025

Minor in Computer Engineering

Amirkabir University of Technology (Tehran Polytechnic)

Tehran, Iran

Sept. 2022 – Aug. 2025

Research Experience

FDD Channel Estimation in Massive MIMO systems using Variational Auto-Encoders

AUT EE Dept.

Supervisor: [Prof. Abbas Mohammadi](#)

Our goal is to devise a new channel estimation methods for Cell-Free Massive MIMO systems based on Variational Auto-encoders. The aim is to take advantage of the knowledge of channel characteristics at one frequency to perform a MAP estimation of the channel at the same environment but at a different frequency. PAPER IN PREPARATION

Research Interests

- Statistical Signal Processing
- Statistical Learning
- Control Systems
- Information and Coding Theory
- Wireless Communication
- Causal Inference

Selected Courses

(Grad.) Advanced Communication Theory

(Grad.) Coding Theory

(Grad.) Random Processes

(Grad.) Probabilistic Graphical Models

(Grad.) Convex Optimization

Discrete-Time Signal Processing

Mobile Wireless Communications

(In Prog.) High-Dimension Probabilities

(In Prog.) Graph Signal Processing

(In Prog.) Adaptive Filters

Digital Communications

Signals and Systems

Data Mining

Data Structures and Algorithms

Teaching Assistance (Voluntarily and Unpaid)

Analog and Digital Communication Systems

Instructor: [Dr. Farnaz Ghassemi](#)

Spring 2025

AUT BioMed. Dept.

Topics: Modulation, Information Theory, Source and Channel Coding, Stochastic Processes

Computer Architecture

Instructor: [Dr. Mohammadreza Pourfard](#)

Fall 2024

AUT EE Dept.

Topics: RISC-V, FPU, Pipeline, Instruction Set

Applied Linear Algebra

Instructor: [Assoc. Prof. Maryam Amirmazlaghani](#)

Spring 2024

AUT CE Dept.

Topics: Vector Space, Matrix Algebra, Orthogonality, Quadratic Forms, PCA, SVD, Least Squares

Analog Communication Systems

Instructor: [Dr. Ali H. Abdollahi Bafghi](#)

Fall 2024

AUT EE Dept.

Topics: Fourier Analysis, AM/FM Modulation, Filters, Noise, Hilbert Transform, Stochastic Processes

Probability and Statistics

Instructor: [Assist. Prof. Farhad A. Namin](#)

Fall 2024

AUT EE Dept.

Topics: Combinatorics, Probability Axioms, PDF, CDF, Conditional Probabilities, Hypothesis Testing

Selected Course Projects

Implementation of Sum-Product algorithm for decoding QC-LDPC codes

Instructor: [Prof. Mohammadreza R. Sadeghi](#)

Related Topics: Tanner Graph, Belief Propagation algorithms, Message Passing

Coding 2
AUT Math. Dept.
[Project Material - GitHub](#)

Probabilistic Graphical Models

Instructor: [Assist. Prof. Ahmad Nickabadi](#)

- Image segmentation and denoising using Markov Random Fields - [GitHub](#)
- Variational inference in binary image denoising - [GitHub](#)
- Causal Inference from Air Quality Dataset - [GitHub](#)

Related Topics: Markov Random Fields, Simulated Annealing, Variational inference, ELBO, Ising Model, Mean-Field Approximation, PC algorithm, Causal Inference,

Course Projects
AUT CE Dept.

Embedded Linux Programming

Instructor: [SINA Communication System](#)

Related Skills: Network, Linux Programming Interface, C, Multi-Thread, Semaphore

INTERNSHIP
Summer 2023

Simulation of FPU in RISC-V architecture using VHDL

Instructor: [Adj. Prof. Mohammadreza Pourfard](#)

Related Topics: FPU, ALU, VHDL Programming, ISE, FPGA

Computer Architecture
AUT EE Dept.
[Project Material - GitHub - I am a co-author](#)

Image and Audio processing using DSP algorithms

Instructor: [Mr. Ali Ebadi](#)

Related Topics: DFT, FFT, DWT, Filter Bank, 2D FFT

DSP Lab
AUT EE Dept.
[Project Material - GitHub](#)

Honors

- Ranked 22nd in the National University Entrance Exam - M.Sc Level
- Won a fellowship award - Fully-Funded direct Ph.D. Position - at the Department of Electrical and Computer Engineering, University of Minnesota, Twin Cities, MN, USA. - Not attended yet due to Trump Travel Ban for the Iranians - Awaiting US Visa.
- Ranked top 0.5% among over 150000 participants in the National University Entrance Exam (Regional rank of 368 and Nationwide rank of 556).

Technical Skills

Languages	Python, MATLAB, C/C++, Assembly, VHDL
Frameworks	PyTorch, CVX, NetworkX, Scikit,
Software	MATLAB, HFSS, ADS, CST

Work Experience

Backend Developer (Junior) Skills	Remote, From March 2025 to December 2025 PropertyGPT Python, Django, Concurrent Programming, SQL Databases
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Languages

Persian	Native
English	Professional (C1) - IELTS Score: 8.0