

PARHAM KAZEMI

School of Electrical and Computer Engineering, University of Tehran, North Kargar st., Tehran, Iran

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EDUCATION

Bachelor of Science in Electrical Engineering (Communications)

Sep. 2017 – Present

*University of Tehran*¹

Tehran, Iran

- Expected Graduation Date: June 2022
- Last two years' GPA: 18.45/20 (4/4) – Total GPA: 17.4/20 (3.74/4)²
- Bachelor Project: "Extracting Singer Vocal From Music Using Blind Source Separation" (Ongoing)
- Supervisor: Dr. Saeed Akhavan Behabadi

Diploma in Mathematics and Physics

Sep. 2013 – Aug. 2017

Allameh Helli High School

Tehran, Iran

- Affiliated with the National Organization for the Development of Exceptional Talents (NODET)
- GPA: 19.79/20 (4/4)

RESEARCH INTERESTS

- Wireless Communications
- Coding and Information Theory
- Optimization
- Signal Processing
- Blind Source Separation

PUBLICATIONS

S. Akhavan, F. Baghestani, **P. Kazemi**, A. Karami, and H. Soltanian-zadeh, "Dictionary Learning for Sparse Representation of Signals With Hidden Markov Model Dependency," 2021. Manuscript submitted for publication.

EXPERIENCES

Research Assistant

Apr. 2021 – Present

University of Tehran

- Devised a new approach to improve the performance of dictionary learning algorithms when there is hidden Markov model (HMM) dependency among the training signals; Resulted to a paper mentioned in publications.

Teaching Assistant

Sep 2019 – Present

University of Tehran

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|---|-------------|---|-------------|
| • Discrete-Time Signal Processing | Fall 2021 | • Electronics II | Fall 2020 |
| Instructor: Dr. Majid Badieirostami | | Instructor: Dr. Shahin Jafarabadi Ashtianii | |
| • Electrical Circuits I | Fall 2021 | • Electronics I | Spring 2020 |
| Instructor: Prof. Jalil Rashed-Mohassel | | Instructor: Dr. Zeinab Sanaee | |
| • Signals and Systems | Spring 2021 | • Physics II | Spring 2020 |
| Instructor: Dr. Saeed Akhavan Behabadi | | Instructor: Dr. Zahra Shaterzadeh Yazdi | |
| • Principles of Communications Systems | | • Introduction to Electrical Engineering | |
| Instructor: Dr. Sadaf Salehkalaibar | Spring 2021 | Instructor: Prof. Mahmoud Shahabadi | Fall 2019 |
| • Linear Control Systems | Fall 2020 | • Electrical Circuits Lab | Spring 2019 |
| Instructor: Dr. Fariba Bahrami | | Instructor: Dr. Hossein Iman-Eini | |

¹Ranked 151-200 in electrical engineering according to QS World University Ranking in 2021.

²University and department average GPA are 15.58 and 15.1 respectively.

SELECTED COURSES³

• Discrete-Time Signal Processing	19.83/20	• Antenna I	19.25/20
• Blind Source Separation (Graduate)	18/20	• Microwave I	18.7/20
• Wireless Communications	16.7/20	• Electromagnetic Fields and Waves	17.1/20
• Digital Communications Systems	16.5/20	• Communication Circuits	17/20
• Linear Control Systems	19.15/20	• Filter and Circuit Synthesis	20/20

SELECTED COURSE PROJECTS

Blind Source Separation | *MATLAB*

Spring 2021

- Retrieved source signals from a set of noisy observations using different ICA algorithms (minimizing Kullback–Leibler divergence based on estimating score function, deflation approach, and equivariant algorithm and maximizing kurtosis function based on deflation approach, fixed-point approach, and FastICA).
- Implemented single-channel and multi-channel blind source deconvolution in both time domain and frequency domain.
- Implemented dictionary learning algorithms (MOD and K-SVD) for sparse representation of signals.
- Generated an LDA classifier for an EEG dataset based on the Common Spatial Pattern (CSP) approach.
- Performed CCA approach in stimulation frequency detection of SSVEP-based BCI.
- Obtained transmitted signals from mixed signals received by a vertical uniform array using MUSIC and beamforming.

Digital Signal Processing (DSP) | *MATLAB*

Fall 2020

- Estimated pulse rate by processing ECG dataset.
- Implemented audio processing in Cepstrum domain and Image Compression using DCT.
- Designed filters for image processing using kernel matrix.

Digital Communications Systems Lab | *MATLAB*

Fall 2020

- Simulated digital modulation techniques such as PAM, QAM, PSK, DBPSK, and FSK (coherent and non-coherent detection) with various detailed considerations (Implemented Gray coding, pulse shaping, symbol to bit converting and vice versa, channel phase offset and delay effect; Designed correlator, matched filter, and minimum-distance detector; Calculated bit error rate).

Wireless Communications | *MATLAB*

Spring 2021

- Simulated receiver and transmitter blocks of an OFDM system and calculated bit error rate for AWGN and Rayleigh channels with and without equalizer.

TECHNICAL SKILLS

Languages: Python, C, Verilog HDL

Simulation Software: MATLAB (highly skilled) and Simulink, ADS, Ansys HFSS, NI Multisim, AutoCAD

LANGUAGES

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| • English: Fluent (TOEFL will be taken soon) | • Farsi: Native |
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HONORS AND AWARDS

- Ranked among top 10 % out of 130 undergraduate students, School of Electrical and Computer Engineering, University of Tehran
- Received scholarship from the Supporter Foundation of University of Tehran as an exceptional talent, 2017-2018 and 2020-2021
- Ranked 291th (top 0.2 %) among almost 138,000 participants in the Nationwide Iranian University Entrance Exam in Mathematics and Physics, June 2017
- Member of the National Organization for Development of Exceptional Talents (NODET), Sep. 2010 - Aug. 2017

REFERENCES

Available upon request.

³All mentioned grades are equivalent to A.