

EMIR CEYANI

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RESEARCH INTERESTS

Machine learning, deep learning, Bayesian methods, Bayesian nonparametrics, approximate inference, spatiotemporal modeling, time-series forecasting, information theory, statistical signal processing and communication systems

EDUCATION

University of Southern California

PhD student in Ming Hsieh Department Electrical & Computer Engineering

Thesis Advisors : **Prof. Dr. A. Salman Avestimehr**

August 2020 - Present

Bilkent University

M.Sc. in Electrical & Electronics Engineering

M.Sc. Thesis: Spatio-Temporal Time-Series Forecasting Under Uncertainty with Deep Learning

Thesis Advisors: **Dr. Salih Ergut**(primary advisor) & Prof. Dr. Suleyman Serdar Kozat

June 2018 - June 2020

Bilkent University

B.Sc. in Electrical & Electronics Engineering

Senior Project: Indoor Localization of FM Signals

September 2013 - June 2018

High Honour Student

ACHIEVEMENTS

- Awarded with **Annenberg Fellowship** from University of SOuther.
- **Accepted** to **PRAIRE AI** machine learning summer school with **travel & accommodation grant** .
- **Accepted** to **Deep|Bayes 2019** machine learning summer school with **travel & accommodation grant** (**Acceptance rate with examination $\leq 30\%$**).
- Funded through **5G and Beyond Joint Graduate Support Program** during M.Sc. studies by Information Technologies and Communication Authority(ICTA) (**Awarded for the first time in Fall 2018**).
- Awarded with **Full Scholarship** from Bilkent University for M.Sc. studies.
- Awarded with **Research Excellence Award** by Bilkent University Electrical and Electronics Engineering Department.
- Bilkent University **High Honour** Student during all undergraduate studies.
- Ranked in **top 2000** among 2M high school graduates in University Entrance Examinations.

PUBLICATIONS

- T. Ergen, and **E.Ceyani**, A Highly Efficient LSTM Architecture for Data Regression, **26th IEEE Signal Processing and Communications Applications Conference (SIU2018)**, **Accepted**, 2018.

PAPERS IN REVIEW

- **E. Ceyani** and S. Ergut, Spatio-Temporal Traffic Forecasting with Bayesian Convolutional LSTM Networks, submitted to **IEEE Transactions of Neural Networks and Learning Systems**, (draft available with permission of supervisor), 2019.
- **E.Ceyani** and S. Ergut, Spatio-Temporal Graph-Series Forecasting under Uncertainty with Bayesian Graph2Graph Sequence Learning, submitted to **IEEE Transactions of Neural Networks and Learning Systems**, (draft available with permission of supervisor), 2019., 2019.
- **E.Ceyani** and S. Ergut, Conditional Graph Recurrent GAN for Graph Sequence Generation, submitted to **IEEE Transactions of Neural Networks and Learning Systems**, (draft available with permission of supervisor), 2019.

ACADEMIC & INDUSTRIAL EXPERIENCES

Turkcell Technology, Istanbul, Turkey

R&D Engineer - October 2018 - Present

- Working as Full-Time Research Engineer under the requirements of **5G and Beyond Joint Graduate Support Program** under the supervision of Dr. Salih Ergut.
- Developing deep learning algorithms for forecasting spatio-temporal grid and graph-structured traffic(Mb) series collected from 4G/5G base stations under non-stationary environments.
- Mainly working on my thesis topic to integrate into Turkcell's decision making systems and for the **AI4Green** project. For AI4GREEN, we are collaborating with Paul Patras from University of Edinburgh.
- As an R&D team, we have proposed a challenge and received research support from **Alan Turing Institute Data Science Group**.

Fintag Software Inc., Ankara, Turkey

Cofounder - March 2019 - Present

- Development of an **online gold transaction system** supported by KOSGEB and The Central Bank of the Republic of Turkey. (Planned Release: February 2020)
- Implemented NATO standard double SHA-256 encoding algorithm and working and leading team of 4 for detecting bad-content and bad-speech from short videos.

IEEE Transactions on Neural Networks and Learning Systems

September 2019 - Present

- Adhoc reviewer.

Bilkent University, Ankara, Turkey

Teaching Assistant September 2019 - Present

- Teaching assistant for Industrial Design Project(EEE 493-494) courses.

Polaran Inc., Ankara, Turkey

Intern Engineer - June 2016 - September 2016

- Implementation of joint blind synchronizer & equalizer for OFDM & LTE (MATLAB) and a root-raised cosine filter to diminish intersymbol interference (VHDL). Supervised by **Prof. Dr. Erdal Arkan**

SELECTED COURSEWORK

Quantum Mechanics I-II
Random Processes
Information Theory
Deep Learning

Statistical Machine Learning
Pattern Recognition
Computational Neuroscience
Detection & Estimation Theory

Nonlinear Systems
Stochastic Control Theory
Telecommunications I - II
Digital Signal Processing

INVITED SUMMER SCHOOLS & ADDITIONAL ONLINE COURSES

PRAIRE AI
Deep|Bayes2019

Coursera Deep Learning
Coursera Machine Learning

Coursera Algorithms Part 1
Coursera Algorithms Part 2

SKILLS

Languages: Turkish(Native) , English, Russian(beginner)

Programming: C/C++, Java, Python(Tensorflow, Pytorch), MATLAB, Julia , R, LaTeX