UFUK USUBUTUN

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EDUCATION

New York University Tandon School of Engineering, Brooklyn NY *September 2020 - ongoing*
PhD in Electrical Engineering - Supervisor: Prof. Shivendra Panwar CGPA: 3.86

Bilkent University, Ankara TR *August 2015 - January 2020*
B.Sc. in Electrical and Electronics Engineering CGPA: 3.76
Minor Degree in Political Science CGPA: 3.73

AGH University of Science and Techology, Cracow PL *February 2018 - July 2018*
Exchange Student in Electrical Engineering

EXPERIENCE

AT&T Labs, Bedminster NJ USA June - August 2023
Summer Research Intern

RAN optimization and trade-offs, Open-RAN

Nokia Bell Labs, Murray Hill NJ USA June - August 2022
Networking Research Intern

Worked on solving traffic oblivious flow routing problems using machine learning tools at the Networking Systems Department under the supervision of Murali Kodialam and Tv Lakshman of Bell Labs Core Research. Received *Outstanding Innovation Award* for work during internship and presented it to Bell Labs Leadership.

NYU Tandon School of Engineering, Brooklyn NY USA Sept 2021 - *ongoing*
Course Assistant

Teaching, grading, assignment preparation and administrative duties on graduate Internet Architectures & Protocols and Network Modeling & Analysis Classes taught by Prof. Shivendra Panwar and on undergraduate Computer Engineering Senior Desing Project Class taught by Prof. Fraida Fund.

Darkblue Telecommunication Systems, Ankara TR February - August 2020
Project Engineer

Development and implementation work at the LTE leg of a Signals of Opportunity Navigation Project developed for UAVs. Initial proof of concept work consisted of simultaneous tracking of multiple LTE base stations using Channel Reference Signals and location estimation using an Extended Kalman Filter. Upon success, a real-time implementation was built on a Xilinx SoC.

Fraunhofer Institute for Integrated Circuits, Erlangen DE June - September 2019
Undergraduate Research Intern

Research project under Communication Systems Department around low-latency goals for wireless. Tasks included development of an OFDM based cooperative telecommunications simulator on Python for testing of proposed relaying schemes while using cyclic delay diversity at the transmitting antennas.

PUBLICATIONS

Oblivious Routing Using Learning Methods
Ufuk Usubutun, Murali Kodialam, T.V. Lakshman, Shivendra Panwar

To appear at IEEE Global Communications Conference 2023

Do Switches Still Need to Deliver Packets in Sequence? **Best Paper Award**
Ufuk Usubutun, Fraida Fund, Shivendra Panwar

IEEE High Performance Switching and Routing Conference 2023

SKILLS

Related Course Work	Internet Arch. & Protocols, Network Modeling & Analysis, Cloud Computing & DCNs, Data Structures & Algorithms, Optimization, Wireless Comms., Machine Learning, Reinforcement Learning & Optimal Control
Experience With	TCP Loss Detection Algorithms: particularly RFCs 8985 & 6675, GENI and Cloudlab Network Testbeds, Analysis of Packet Captures Queuing Theory and Markov Chain Modelling, Routing Optimization Problem Formulation and Descent Based Solutions Resiliency Modeling, Machine Repair Problems 3GPP Cellular Protocol Stack, RRC Layer Protocols and Procedures
Programming Experience	*bash* scripting for large scale network experiments, linux kernel patching *pytorch* implementation of constrained routing optimization problems, *pandas* analysis of experimental data, Matlab LTE, 5G and Control System Toolbox experience, Java and Python OOP experience

ONGOING PROJECTS

On Packet Reordering and Time Based Loss Detection

Using our conclusions from HPSR 23', we are interested in (i) obtaining analytical bounds for tolerability of packet reordering under time based methods, (ii) discovering the case of wireless communications and multipath.

On 5G Radio Resource Control Layer State Space

In Continuation of my summer internship work at AT&T Labs, I working to model and optimize the 5G RRC State Space.

On Virtual Radio Access Network Resilience

As a second project at AT&T Labs, I am interested in application of Machine Repair Problems, onto Virtual RAN Resilience Problems.

On Oblivious Routing

Using our method from Globecom 23', we are interested in (i) obtaining different ways of solving this problem, (ii) applying this idea to disaster recovery resource provisioning problems under limited network knowledge.

ACADEMIC ACHIEVEMENTS

Scored in the top 0.25% in the Turkey-wide University Entrance Exam with around 2 Million exam takers.

Awarded Academic Excellence Scholarships waiving tuition of undergraduate studies.

School of Engineering Fellow at NYU Tandon. Covers tuition, health insurance and stipend.

LANGUAGES

Turkish: Native
English: Fluent *TOEFL Score: 109/120*
French: Proficient *Delf B2 Certificate*

VOLUNTARY ACTIVITIES

Mentorship to High School Students within NYU Tandon ARISE High School Research Program.

Co-leading of high school FRC robotics team Anatolian Eaglebots 3390. Gave basic coding and electronics trainings for high school students and took part in design and strategy decisions for the team.

Executive Board Membership of Sociology Club for 2.5 years at Bilkent University. Organized conferences, discussion sessions and guided city walks with academics.

Participant and Executive Board Member of Theatre and Improvision Club for 4 years at Bilkent University. Acted in plays and improvisations. Directed an planned numerous improvisation sessions.

PERSONAL TRAITS

Passionate about history, foreign languages and jazz.