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: 3.81

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

Marvell Semiconductors, Santa Clara CA USA June - August 2024
Switch Architect Engineer Intern

Worked on the Ultra Ethernet protocol suite being developed for Data Center Networks. Conducted simulations with proposed UET transport algorithms. Built Markov models to guide the Teralynx switch architecture design.

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

Worked on modeling 5G Radio Resource Control layer and adjusting states transitions by tuning inactivity timers to optimize for KPIs, with potential benefits for RAN optimization and Open-RAN implementations.

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

Worked on efficiently solving traffic oblivious flow routing problems using machine learning methods with Murali Kodialam and Tv Lakshman of Bell Labs Core Research. (See publications & awards.)

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, Network Modeling & Analysis and Network Security Classes taught by Prof. Shivendra Panwar.

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

Worked on positioning UAVs by tracking time shifts in Channel Reference Signals of multiple LTE base stations and processing them with an Extended Kalman Filter model. Collected samples using USRPs and implemented a proof of concept on MATLAB.

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

Development of an OFDM based physical layer cooperative telecommunications simulator on Python for evaluation of proposed relaying schemes while using cyclic delay diversity at the transmitting antennas.

PUBLICATIONS

Designing Reliable Virtualized Radio Access Networks To appear at IEEE Globecom 2024
Ufuk Usubutun, Andre Gomes, Shankarayanan P. Narayanan, Matti Hiltunen, Shivendra Panwar

Oblivious Routing Using Learning Methods IEEE Globecom 2023
Ufuk Usubutun, Murali Kodialam, T.V. Lakshman, Shivendra Panwar

Do Switches Still Need to Deliver Packets in Sequence? IEEE HPSR 2023
Ufuk Usubutun, Fraida Fund, Shivendra Panwar ***Best Paper Award***

SKILLS

Related Course Work	Internet Architecture & Protocols, Network Modeling & Analysis, Probability, Cloud Computing & DCNs, Data Structures & Algorithms, Optimization, Wireless Comms., Machine Learning, AI/ML for Networking Reinforcement Learning & Optimal Control, Network Optimization
Experience With	**Standards:** IETF RFCs, 3GPP, Open-RAN, Ultra Ethernet Transport **Networking Testbeds and Experimentation:** Analysis of Packet Captures **System Modeling:** Queuing Theory, Markov Chains, TCP Congestion Control Flavors and Loss Detection Algorithms Network Optimization Theory
Programming Experience	*bash* scripting for large scale network experiments, linux kernel patching Python, Matlab implementations of routing optimization, Markov Chains *pandas* analysis of network experimental data, packet captures, 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 cases 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. I am also considering a potential extension to Carrier Aggregation.

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.

AWARDS AND RECOGNITIONS

2024 - The Dante Youla Award for Graduate Research Excellence NYU Tandon ECE Dept.

2023 - Best Paper Award IEEE HPSR 2023 Co-Chairs

2022 - Oustanding Innovation Award Nokia Global Student Program

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 through PhD.

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.