Caglar Tunc — Curriculum Vitae

Contact Information

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Research Interests

Low-latency network design and analysis for 5G, mmWave communications for vehicular networks, applications of machine learning on 5G-NR and LTE-Advanced.

Education

NYU Tandon School of Engineering, New York, NY, U

PhD., Electrical and Computer Engineering, September 2016 - Present

- **CGPA:** 3.95/4.00
- **Advisor:** Prof. Dr. Shivendra Panwar
- Ernst Weber Fellowship, Ph.D.
- **Related Courses Taken:** Wireless Communications, Massive MIMO, Advanced Machine Learning, Convex/Nonsmooth Optimization, Information Theory, Advanced Signal Processing, Queuing Theory

Bilkent University, Ankara, Turkey

M.S., Electrical and Electronics Engineering, September 2013 - June 2016

- **CGPA:** 3.84/4.00
- **Advisor:** Prof. Dr. Nail Akar
- **Thesis title:** "Energy Management in Energy Harvesting Wireless Sensor Nodes With Lifetime Constraints"
- TUBITAK Graduate Scholarship

B.S., Electrical and Electronics Engineering, August 2009 - June 2013

- **CGPA:** 3.77/4.00
- Comprehensive Scholarship by Placement Examination (OYS)

Ankara Ataturk Anatolian High School, Ankara, Turkey September 2005 - June 2009

Professional Experience

NYU Wireless, NYU Tandon School of Engineering, New York, NY, USA

Teaching/Research Assistant Fall 2016 - Spring 2020

Samsung Research America, Berkeley Heights, NJ, USA

Intern, SMI May 2020 - August 2020

- Electric and magnetic fields (EMF)-based power control for Massive MIMO

Futurewei Technologies, Bridgewater, NJ, USA

Systems Engineering Intern May 2019 - August 2019

- Data/statistical analysis and machine learning-based prediction/performance improvement of link adaptation in 5G-NR

Systems Engineering Intern May 2018 - August 2018

- Optimizing link adaptation in 5G-NR using machine learning techniques

Systems Engineering Intern May 2017 - August 2017

- Carrier aggregation in LTE-Advanced

Bilkent University, Ankara, Turkey

Research Assistant, Graduate Teaching Assistant Fall 2013 - Spring 2016

ASELSAN, Ankara, Turkey

Part-Time System Engineer December 2012 - June 2013

- Design of Wireless Communication Devices and Networks for Police and Gendarmerie

Journal Publications

- **C. Tunc** and S. Panwar. "Mitigating the Impact of Blockages in Millimeter-Wave Vehicular Networks through Vehicular Relays", IEEE Open Journal of Intelligent Transportation Systems, under review.
- **C. Tunc**, MF. Özkoç, F. Fund and S. Panwar. "The Blind Side: Latency Challenges in Millimeter Wave Networks for Connected Vehicle Applications", IEEE Transactions on Vehicular Technology, December 2020.

- E. O. Gamgam, **C. Tunc** and N. Akar. "On the Queuing Model of the Energy-Delay Trade-Off in Wireless Links with Power Control and Link Adaptation", IEEE Transactions on Communications, February 2019.
- N. Akar, **C. Tunc**, M. A. Gaertner and F. Erden. "Performance of Shortest Cumulative Access Time First (SCATF) Disk Scheduling Algorithms", The Turkish Journal of Electrical Engineering & Computer Sciences, July 2017.
- **C. Tunc** and N. Akar. "Markov Fluid Queue Model of an Energy Harvesting IoT Device with Adaptive Sensing", Performance Evaluation, May 2017.
- **C. Tunc** and N. Akar. "Fixed-point Analysis of a Network of Routers with Persistent UDP and TCP Flows and Class-based Weighted Fair Queuing" Telecommunication Systems, July 2016.
- **C. Tunc** and N. Akar. "Mapping Time-varying IP Traffic to Flexible Optical Paths in Flexgrid Optical Networks" Photonic Network Communications, August 2014.

Conference Publications

- **C. Tunc** and S. Panwar. "Analysis of Outage Probability and Duration in Millimeter Wave Vehicle-to-Infrastructure Networks", IEEE 92nd Vehicular Technology Conference: VTC2020-Fall, Victoria, BC Canada, to appear.
- **C. Tunc** and S. Panwar. "Optimal Transmission Policies for Energy Harvesting Age of Information Systems with Battery Recovery", 2019 Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA, USA.
- **C. Tunc**, MF. Özkoç and S. Panwar. "Millimeter Wave Coverage and Blockage Duration Analysis for Vehicular Communications", IEEE 90th Vehicular Technology Conference: VTC2019-Fall, Honolulu, Hawaii, USA.
- **C. Tunc** and N. Akar. "Efficient Transport of Time-varying IP Traffic in Flexi-grid Optical Networks", Signal Processing and Communications Applications Conference (SIU), Trabzon, Turkey, April 2014.

Presentations

C. Tunc and N. Akar. "Performance Modeling of Delay-based Dynamic Speed Scaling", The Ninth International Conference on Matrix-Analytic Methods in Stochastic Models (MAM9), Budapest, Hungary, June 2016.

Thesis

C. Tunc. "Energy Management in Energy Harvesting Wireless Sensor Nodes with Lifetime Constraints." MS Thesis, Bilkent University, June 2016.

Languages

English: Fluent, **Spanish**: Moderate, **German**: Beginner, **Turkish**: Native

Comp. Skills

Matlab/CVX/Gurobi, Java, Python, TensorFlow, Torch, VHDL, C, R, AMPL, Assembly.

Awards & Achievements

- Ernst Weber Fellowship (PhD), NYU Tandon School of Engineering
- TUBITAK Graduate Scholarship
- Bilkent University Master of Science Study Full Scholarship
- Bilkent University High Honor Student (2009-2010 Fall, 2009-2010 Spring, 2010-2011 Fall, 2010-2011 Spring, 2011-2012 Fall, 2012-2013 Fall, 2012-2013 Spring)
- Bilkent University Honor Student (20011-2012 Spring)
- TUSIAD's 'Bu Gençlikte İş Var' Honourable Mention Award
- Comprehensive Scholarship by University Placement Examination (OYS)
- Ranked 420th in University Entrance Exam among 1.4 million candidates