

CONTACT INFORMATION	Sabancı Üniversitesi Lojmanları C-18, Orta Mahalle, Tuzla, İstanbul, Türkiye	<i>E-mail:</i> caglar.tunc@turkcell.com.tr <i>Personal Website:</i> www.caglartunc.com <i>Phone:</i> +90 532 210 6105
RESEARCH INTERESTS	Cutting-edge wireless technologies including 6G, O-RAN, V-RAN, and Digital Twins. Stochastic design and analysis of wireless networks. Applications of machine learning for Beyond 5G.	
EDUCATION	NYU Tandon School of Engineering , New York, NY, USA Ph.D., Electrical and Computer Engineering, September 2016 - February 2022 <ul style="list-style-type: none"> ▪ CGPA: 3.97/4.00 ▪ Advisor: Prof. Dr. Shivendra Panwar ▪ Dissertation title: "Mitigating the Challenges of Low-Latency Services in Future Wireless Networks" ▪ 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 <ul style="list-style-type: none"> ▪ 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 <ul style="list-style-type: none"> ▪ CGPA: 3.77/4.00 ▪ Comprehensive Scholarship by Placement Examination (OYS) Ankara Atatürk Anatolian High School , Ankara, Turkey September 2005 - June 2009	
PROFESSIONAL EXPERIENCE	Turkcell 6GEN Lab , Maltepe, İstanbul, Türkiye <i>6G Researcher</i> February 2024 - Present <ul style="list-style-type: none"> ▪ Investigating technologies and verticals for 6G networks ▪ Applying and coordinating national and EU projects AT&T Labs Research , Bedminster, NJ, USA <i>Senior Inventive Scientist</i> March 2022 - January 2024 <ul style="list-style-type: none"> ▪ Research and development of O-RAN-based networking ▪ Development of the Digital Twin platform for cellular network automation and testing Samsung Research America , Berkeley Heights, NJ, USA <i>Intern, Standard and Mobility Innovation (SMI)</i> May 2020 - August 2020 <ul style="list-style-type: none"> ▪ Electric and magnetic fields (EMF)-based power control for Massive MIMO Futurewei Technologies , Bridgewater, NJ, USA <i>Systems Engineering Intern</i> May 2019 - August 2019 <ul style="list-style-type: none"> ▪ Data/statistical analysis and machine learning-based prediction/performance improvement of link adaptation in 5G-NR <i>Systems Engineering Intern</i> May 2018 - August 2018 <ul style="list-style-type: none"> ▪ Optimizing link adaptation in 5G-NR using machine learning techniques <i>Systems Engineering Intern</i> May 2017 - August 2017 <ul style="list-style-type: none"> ▪ Carrier aggregation in LTE-Advanced ASELSAN , Ankara, Turkey <i>Part-Time System Engineer</i> December 2012 - June 2013 <ul style="list-style-type: none"> ▪ Design of Wireless Communication Devices and Networks for Police and Gendarmerie 	

ACADEMIC
EXPERIENCE**NYU Wireless, NYU Tandon School of Engineering, New York, NY, USA***Research Assistant**Teaching Assistant*

September 2016 - February 2022

- Internet Architecture and Protocols, Graduate Core Course
- Fundamentals of Communication Theory, Undergraduate Core Course
- Communication Networks, Undergraduate Core Course
- Probability and Stochastic Processes, Graduate Core Course

Bilkent University, Ankara, Turkey

Fall 2013 - Spring 2016

*Research Assistant**Graduate Teaching Assistant*

- Internet Architecture and Protocols, EEE536, Graduate Elective Course
- Telecommunications I, EEE431, 4th year Undergraduate Elective Course
- Microprocessors, EEE212, 2nd year Undergraduate Course
 - Project & Laboratory Coordinator Assistant

PROFESSIONAL
SERVICE**Associate Editor***IEEE Wireless Communications Letters*

March 2024 - Present

BOOK CHAPTER

- K. Joshi, TX. Tran and **C. Tunc**. "Digital Twin for Beyond 5G", *AI in Wireless for Beyond 5G Networks*, IEEE Press Series on Digital and Mobile Communications, CRC Press, February 2024.

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*, July 2021.
- **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.

WORKING PAPERS

- K. Czapiga, S. Isci, Y. Karon, V. Kounev, TX Tran and **C. Tunc**. "AI-Accelerated Digital Twins for 6G", in progress.

PATENTS

- Z. Lin, S. Das, **C. Tunc** and J. Zhang. "Apparatus and method for managing the exposure to electric and magnetic fields (EMF)", US11064443B1, July 2021.

CONFERENCE
PUBLICATIONS

- MF. Özkoç, **C. Tunc** and S. Panwar. "Data-Driven Beamforming Codebook Design to Improve Coverage in Millimeter Wave Networks", *IEEE 95th Vehicular Technology Conference: VTC2022-Spring*.
- **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.
- **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", <i>The Ninth International Conference on Matrix-Analytic Methods in Stochastic Models (MAM9)</i> , Budapest, Hungary, June 2016.
DISSERTATION	C. Tunc . "Mitigating the Challenges of Low-Latency Services in Future Wireless Networks." <i>Ph.D. Dissertation</i> , New York University, May 2022.
THESIS	C. Tunc . "Energy Management in Energy Harvesting Wireless Sensor Nodes with Lifetime Constraints." <i>MS Thesis</i> , Bilkent University, June 2016.
LANGUAGES	English : Fluent, Spanish : Moderate, German : Beginner, Turkish : Native
COMP. SKILLS	Python, MATLAB/CVX/Gurobi, Torch, TensorFlow, VHDL, Java, R, AMPL, Assembly.
AWARDS & ACHIEVEMENTS	<ul style="list-style-type: none"> ▪ Ernst Weber Fellowship (Ph.D.), 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 ▪ Ranked 420th in University Entrance Exam among 1.4 million candidates