

## Gunes KARABULUT KURT, PhD

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### CONTACT INFORMATION

Professor,  
Director of Wireless Communications Research Lab.  
Marie Curie Fellow  
*IEEE Senior Member*  
Electronics and Communication Engineering  
Faculty of Electrical and Electronics Engineering  
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### RESEARCH INTERESTS

**Design and Implementation of Intelligent Secure Wireless Communication Networks:**  
Cognitive Cyber-Physical Systems, Experimental Design Verification Activities, Joint Communication and Computation Systems, Machine-learning Empowered Wireless Networks, Satellite and Space Networks, Wireless Security Systems.

### HIGHLIGHTS

- Adjunct Research Professor at Department of Systems and Computer Engineering, Carleton University, Canada.
- Director of Wireless Communications Research Laboratory at Istanbul Technical University.
- Visiting Professor at Carleton University, Ottawa, Canada, August 2019-August 2020.
- IEEE Wireless Comm. and Networking Conf. (WCNC) Steering Committee Member
- Over 1M USD in total awarded research grants from industrial partners, the European Union and the Scientific and Technological Research Council of Turkey (TUBITAK).
- The author of over 70 peer-reviewed journal papers, 11 granted patents, 9 filed patent applications, 9 book chapters, and more than 180 conference papers.
- Supervised 6 PhD theses (1 as a co-supervisor), 16 MSc theses and 37 Senior Design Projects.
- Collaborations with 11 different technology companies.
- Associate Technical Editor of the *IEEE Communications Magazine*.
- Contributed to 29 industry or academia partnered research projects either as the principle investigator or as a researcher.
- Pioneered several significant test-bed designs for experimental verification for several topics including network coding, non-orthogonal multiple access (NOMA) and various waveform designs, that have been published in reputable IEEE Journals.
- Vice-Chair of Marie Curie Alumni Association (MCAA) Board of the Turkish Chapter (2018-2020)
- Vice-Chair of IEEE Turkey Section (2016-2017, 2018-2019)

### AWARDS

- Young Scientists Award of Turkish Academy of Sciences, 2019.
- EU COST Action 1104/TUBITAK Project 113E294 on Network Coding *selected as a Success Story by TUBITAK in 2018.*
- 2017 NI Engineering Impact Awards Finalist: RF and Mobile Communications Category *Using NI's SDR Platform as a Testbed of 5G Waveform Research*
- MARIE CURIE Fellow, International Re-integration Grant, IRG, Grant # 231042, 2009/2011 *Selected as a Success Story by RTD*
- Ontario Graduate Scholarship (OGS)  
Awarded to approximately 50 international students/year across all disciplines throughout the Province of Ontario, Canada: 2004/05, 2003/04, 2002/03, 2001/02
- University of Ottawa Excellence Scholarship: 2004/05, 2003/04, 2002/03, 2001/02
- University of Ottawa Admission Scholarship and Soft Funded Research Assistantship 2000/01

## EDUCATION

- Doctor of Philosophy** September 2002 to June 2006  
Electrical Engineering, University of Ottawa, Ottawa, Ontario
- *Sequential Basis Selection Algorithms with Applications in Wireless Communication*
  - Supervisor: Prof. Abbas Yongacoglu
  - PhD thesis nominated for Governor General's gold medal
  - GPA: 10.0/10.0
- Master of Science** September 2000 to June 2002  
Electrical Engineering, University of Ottawa, Ottawa, Ontario
- *Design Considerations in Multi-level Coded Systems*
  - Supervisor: Prof. Abbas Yongacoglu
  - GPA: 10.0/10.0
- Bachelor of Science** September 1996 to June 2000  
Electrical and Electronics Engineering, Bogazici University, Istanbul, Turkey
- High Honors
  - GPA: 3.70/4.00, Ranked 3rd

ACADEMIC  
APPOINTMENTS

- Associate Professor** March 2021 to present  
Department Electrical Engineering, Polytechnique Montréal
- Adjunct Research Professor** November 2019 to present
- Visiting Professor** August 2019 to August 2020  
Department of Systems and Computer Engineering, Carleton University,
- Working with Prof. Halim Yanikomeroglu
  - Research Scope: Integrated Aerial/Terrestrial 6G Networks
- Professor** March 2019 to present  
Electronics and Communication Engineering, Istanbul Technical University,
- Director of Wireless Communications Research Laboratory (WCRL)
  - Set-up the software defined radio testbed at the WCRL with MIMO support
  - Erdős Number: 3
  - Citations as of 18.02.2021
    - Google Scholar: 1634
    - Scopus: 895
  - Administrative Tasks:
    - Co-coordinator of Mevlana Exchange Program
    - Assistant coordinator of NCEES FE/PE Exams @ ITU
- Associate Professor** May 2013 to March 2019  
Electronics and Communication Engineering, Istanbul Technical University,
- Management Committee Member: COST Action 1104 - Random Network Coding And Designs Over GF(q)
  - Worked with ITU IEEE Student Branch to organize invited talks and field trips to leading communications and network companies.
  - Administrative Tasks:
    - Co-coordinator of Mevlana Exchange Program
    - Assistant coordinator of NCEES FE/PE Exams @ ITU
    - Departmental R&D coordinator
- Assistant Professor** April 2010 to May 2013  
Electronics and Communication Engineering, Istanbul Technical University,
- Graded with an overall score of 4.29/5 by students of Spring 2012 classes (standard deviation 0.7)
  - Administrative Tasks:
    - Member of Improvement of Education Quality Board,
    - Advisor to the Dean of Faculty of Electric and Electronics about Industry-Academia Connections
- Invited Lecturer** September 2008 to April 2010  
Electronics and Communication Engineering, Istanbul Technical University,

- TEL 505E Wireless & Personal Communications
- TEL 603E Advanced Topics in Communications *Multicarrier Communication Systems*

**Research Assistant** September 2000 to April 2005

Communication and Signal Processing Laboratory (CASP),  
School of Information Technology and Engineering (SITE), University of Ottawa,

**Teaching Assistant** September 2000 to April 2005

School of Information Technology and Engineering (SITE), University of Ottawa,

- Physics Department, University of Ottawa
  - Conducted laboratory sessions, and evaluated students based on their laboratory reports and performance enrolled in Introduction to Physics, Winter 04.
  - Conducted discussion groups, and evaluated students based on their written work in Fundamentals of Physics for Engineers, Winter 05.
- School of Information Technology and Engineering (SITE), University of Ottawa
  - Presented assignments, conducted laboratory sessions in French and English, and given tutorials to students enrolled in the following courses:  
Circuits et Machines Électriques pour Ingénieurs en Mécanique,  
Wireless Communication Fundamentals, Random Signals and Systems,  
Introduction to Electrical and Computer Eng., Introduction to Control Systems,  
Signal and System Analysis, Electronics for Mechanical Engineers.

**Student Assistant** September 1999 to June 2000

Signal and Image Processing Laboratory (BUSIM),  
Department of Electrical and Electronics Engineering, Bogazici University

PROFESSIONAL  
EXPERIENCE

**Senior Specialist**, Turkcell R&D/Istanbul, Turkey April 2008 to April 2010

- Awarded **Marie-Curie** fellowship with REALMARS project upon return from Canada.
- **Selected as a success story by European Commission Research Executive Agency upon completion in 2011.**
- Research engineer for FP7 STREP Project WiMAGIC: Worldwide Interoperability Microwave Broadband Access System for Next Generation Wireless Communications
- Filed 5 EPC Patents

**R&D Algorithmic Engineer**, Edgewater Computer Systems/Ottawa, Canada April 2006 to April 2008

- R&D of OFDMA based Physical Layer Signalling communication protocols for avionics
- Designed and verified, through analyses and simulations, algorithms used for novel OFDMA Physical Layer Signalling protocols (Standardized as MIL STD 1553-E)
- Participated as a member of a team of research and development engineers involved in the design of protocols from the Physical Layer through to the Network Layer
- Routinely analysed and produced requirement documents.
- Analyzed and design of DSP systems, implementation of novel algorithms.
- Involvement in the testing of physical layer systems.
- Documentation of algorithms for improving DSP designs

**Algorithmic Engineer**, TenXc Wireless/Ottawa, Canada April 2005 to April 2006

- Worked as an RFID expert in Advanced Technology department and responsible for RFID System design using smart antennas reporting directly to CTO and CEO.
- Involved in research, design and implementation of advanced signal processing algorithms for the physical layer of high speed cellular communications networks.
- Employed in the design of mobile base station Intelligent Antenna systems generating interference-free signals for significantly increased system capacity and quality.
- Investigated effects of smart antennas on WiMAX systems.
- Worked in the design of different types of algorithms including space-time processing, least-mean-squares algorithm, sample matrix inversion, maximum likelihood estimations, spatial

division multiple access, switched beam algorithms, temporal reference algorithms, spatial reference algorithms, semi-blind co-channel detection, and blind algorithms.

- Knowledge of the GSM, GPRS, EDGE, WCDMA, WiMAX standards. Duties include: Investigation, analysis and development of advanced signal processing and communications algorithms, in particular for split-sector, multi-beam antenna systems, adaptive beamforming and MIMO (including OFDM).
- Involved in smart antenna architecture definition and direction of implementation activities and system level verification of hardware implementations of algorithms.

- [1] K. Tekbiyik, O. Akbunar, A.R. Ekti, G. Karabulut Kurt, A. Gorcin, and S. Yarkan, "Modeling and Analysis of Short Distance Sub-Terahertz Communication Channel via Mixture of Gamma Distribution," *accepted for publication in IEEE Transactions on Vehicular Technology*.
- [2] Y.U. Ozcan, O. Ozdemir, and G. Karabulut Kurt, "Reconfigurable Intelligent Surfaces for the Connectivity of Autonomous Vehicles," *accepted for publication in IEEE Transactions on Vehicular Technology*.
- [3] R. Cetin, S. Gecgel, G. Karabulut Kurt, and F. Baskaya, "Convolutional Neural Network based Signal Classification in Real-Time," *accepted for publication in IEEE Embedded Systems Letters*.
- [4] H.O. Cirkinoglu, O. Ferhanoglu, and G. Karabulut Kurt, "Improved physical layer security of visible light communications with focused light emitters," *Optics Communications*, vol. 485, Apr. 2021.
- [5] E. Erdogan, I. Altunbas, G. Karabulut Kurt, M. Bellemare, G. Lamontagne, and H. Yanikomeroglu, "Site Diversity in Downlink Optical Satellite Networks Through Ground Station Selection," *IEEE Access*, vol. 9, Feb. 2021.
- [6] O.A. Topal, and G. Karabulut Kurt, "A Countermeasure for Traffic Analysis Attacks: Covert Communications with Digital Modulation," *IEEE Wireless Communications Letters*, vol. 10, no. 2, Feb. 2021.
- [7] Q.R. Jian Chen, O. Abbasi, G. Karabulut Kurt, H. Yanikomeroglu, and F.R. Yu, "An Application-Driven Non-Orthogonal Multiple Access Enabled Computation Offloading Scheme," *IEEE Internet of Things Journal*, vol. 8, no. 3, Feb. 2021.
- [8] Md. S.Alam, G. Karabulut Kurt, H. Yanikomeroglu, P Zhu, and N. Dung Dao "High Altitude Platform Station based Super Macro Base Station (HAPS-SMBS) Constellations," *IEEE Communications Magazine*, vol. 59, no. 1, Jan. 2021.
- [9] E. Benamira, F. Merazka, and G. Karabulut Kurt, "Dynamic Optimized Cooperation in Multisource Multirelay Wireless Networks With Random Linear Network Coding," *Electronics Letters*, Jan. 2021.
- [10] C. Goztepe, B. Ozbek, and G. Karabulut Kurt, "Design and Implementation of Spatial Correlation-Based Clustering for Multiuser MISO-NOMA Systems," *IEEE Communications Letters*, vol. 25, no. 1, Jan. 2021.
- [11] Y. Sabucu Sandal, A. E. Pusane, G. Karabulut Kurt, and F. Benedetto, "Reputation Based Attacker Identification Policy for Multi-Access Edge Computing in Internet of Things," *IEEE Transactions on Vehicular Technology*, vol. 69, no. 12, Dec. 2020.
- [12] K. Tekbiyik, A.R. Ekti, G. Karabulut Kurt, A. Gorcin, and H. Yanikomeroglu, "A Holistic Investigation on Terahertz Propagation and Channel Modeling Toward Vertical Heterogeneous Networks," *IEEE Communications Magazine*, vol. 58, no. 11, Nov. 2020.

- [13] Y. Aydin, G. Karabulut Kurt, E. Ozdemir, and H. Yanikomeroglu, "A Flexible and Light-weight Group Authentication Scheme," *IEEE Internet of Things Journal*, vol. 7, no. 10, Oct. 2020.
- [14] M.O. Demir, A. Pusane, G. Dartmann, G. Asheid, and G. Karabulut Kurt, "A Garden of Cyber-Physical Systems: Requirements, Challenges and Implementation Aspects," *IEEE Internet of Things Magazine*, vol. 3, no. 3, Sept. 2020.
- [15] M. Cansiz, D. Altinel, and G. Karabulut Kurt, "Effects of Different Modulation Techniques on Charging Time in RF Energy Harvesting System," *IEEE Transactions on Instrumentation & Measurement*, vol. 69, no. 9, March 2020.
- [16] M. Bouteggui, F. Merazka, and G. Karabulut Kurt, "The effective capacity of two-unicast network coding STBC under retransmission schemes," *Digital Signal Processing*, vol. 106, Nov. 2020.
- [17] S. Buyukcorak, O.A. Topal, O. Ferhanoglu, and G. Karabulut Kurt, "Mixture Model for Visible Light Communications," *Electronics Letters*, vol. 56, no 11, May 2020.
- [18] M. Bouteggui, F. Merazka, and G. Karabulut Kurt, "Effective Capacity of Multi-Uncast Flows using Network coded-ARQ," *Electronics Letters*, vol. 56, no. 9, April 2020.
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- [20] U. Altun, S. Tedik Basaran, G. Karabulut Kurt, and E. Ozdemir, "Authenticated Data Transmission Using Analog Function Computation," *IEEE Communications Letters*, vol. 24, no. 11, Nov. 2020.
- [21] O. Topal, M.O. Demir, Z. Liang, A. Pusane, G. Dartmann, G. Asheid, and G. Karabulut Kurt, "A Physical Layer Security Framework for Cognitive Cyber Physical Systems," *IEEE Wireless Communications Magazine*, vol. 27, no. 4, Aug. 2020.
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- [28] S. Gecgel, C. Goztepe, and G. Karabulut Kurt "Transmit Antenna Selection for Large-Scale MIMO GSM with Machine Learning," *IEEE Wireless Communications Letters*, vol. 9, no.1, Jan. 2020.

- [29] D. Altinel, and G. Karabulut Kurt, "Modeling of Multiple Energy Sources for Hybrid Energy Harvesting IoT Systems," *IEEE Internet of Things Journal*, vol. 6, no. 6, December 2019.
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- [31] S. Tedik Basaran, and G. Karabulut Kurt, "Wireless Channel Induced Coding," *IEEE Communications Letters*, vol. 23, no. 10 , Oct. 2019.
- [32] G. Karabulut Kurt, E. Ozdemir, A.N Ozkircisci, and O.A. Topal, "A Key Verification Protocol for Quantum Key Distribution," *IEEE Access*, vol.7, no.1, Sept. 2019.
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- [34] K. Tekbiyik, A. R. Ekti, G. Karabulut Kurt, and A. Gorcin, "Terahertz Band Communication Systems: Challenges, Novelty and Standardization Efforts," *Physical Communication*, vol.35, August 2019.
- [35] D. Altinel, and G. Karabulut Kurt, "Modeling of Hybrid Energy Harvesting Communication Systems," *IEEE Transactions on Green Communications and Networking*, vol.3, no.2, June 2019.
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- [39] Y. Sabucu, A. E. Pusane, and G. Karabulut Kurt, "Robust Matching Algorithms for Carrier Aggregated Heterogeneous Networks," *Physical Communication*, vol.33 , Apr. 2019.
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- [44] M. Aldababsa, M. Toka, S. Gokceli, G. Karabulut Kurt, and O. Kucur, "A Tutorial on Non-Orthogonal Multiple Access (NOMA) for 5G and Beyond," *Wireless Communications and Mobile Computing*, vol. 2018, June 2018.

- [45] B. Ozbek, O. Ozdogan, and G. Karabulut Kurt, "Secure Multiuser MISO Communication Systems with Limited Feedback Link," *Annals of Telecommunications*, vol. 73, no.5-6, June 2018.
- [46] O. Cepheli, G. Karabulut Kurt, G. Dartmann, and G. Ascheid, "A Joint Optimization Scheme for Artificial Noise and Transmit Filter for Half and Full Duplex Wireless Cyber Physical Systems," *IEEE Transactions on Sustainable Computing*, vol.3, no.2, April-June, 2018.
- [47] B. Ozbek, and G. Karabulut Kurt, "Spatial Signature for Secure MISO-OFDM Systems," *Electronics Letters*, vol. 54, no. 9, May 2018.
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- [49] D. Altinel, and G. Karabulut Kurt, "Finite-State Markov Channel Based Modeling of RF Energy Harvesting Systems," *IEEE Transactions on Vehicular Technology*, vol.67, no.2, Feb. 2018.
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- [52] S. Buyukcorak, and G. Karabulut Kurt, "A Bayesian Perspective on RSS Based Localization for Visible Light Communication with Heterogeneous Networks Extension," in *IEEE Access*, vol.5, Aug. 2017.
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PATENTS  
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- [3] G. Kurt and C. Sahin, "A location estimation and data transmission method," Jun. 24 2010, WO PCT/IB2009/055,564.
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- [9] M. Uysal, I. Altunbas, S. Tedik Basaran, and G. Karabulut Kurt, "Random Network Coding in Orthogonal Frequency Division Multiple Access (OFDMA) Networks Using Control Signaling," PCT/TR2016/050410.
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PATENT  
APPLICATIONS

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- [96] S. Buyukcorak, G. Karabulut Kurt, "Simulation and Measurement of Spatial Correlation in MIMO Systems with Ray Tracing," in *5th International Conference on Signal Processing and Communication Systems*, Honolulu, US, 12-14 Dec. 2011.
- [97] S. Aksu, E.E. Gungor, G. Karabulut Kurt, "Effect of Nakagami-m Fading on the QoS Performance of VoIP in Wireless Mesh Networks," in *IEEE International Symposium on Hot topics in Mesh Networks Workshop*, Lucca, Italy, 20 June 2011.
- [98] E. Bahar, G. Karabulut Kurt, "Location Estimation in Multi-Carrier Systems Using Extended Kalman Based Interacting Multiple Model and Data Fusion," in *IEEE Symposium on Computers and Communications*, Corfu, Greece, 28 June - 1 July 2011.
- [99] M.C. Sezgin, B. Gungor, G. Karabulut Kurt, "A Novel Perceptual Feature Set for Audio Emotion Recognition," in *IEEE 1st International Workshop on Emotion Synthesis, rePresentation, and Analysis in Continuous Space*, Santa Barbara, US, 21 March 2011.
- [100] B. Yuksel, S. Oktug, G. Karabulut Kurt, I. Goksel, "An Empirical Study on The Effect of Mobility of GSM Telephone Traffic," in *IEEE Personal, Indoor and Mobile Radio Conference (PIMRC)*, Istanbul, Turkey, 26-29 Sept. 2010.
- [101] T. Kurt, G. Karabulut Kurt, A. Yongacoglu, "Unit Density Axially Localized Pulse (UDALOP) for Multi-carrier Communication Systems," in *IEEE Vehicular Technology Conference*, Ottawa, Canada, 6-9 Sept. 2010.
- [102] I.L. Karaevli, I. Altunbas, G. Karabulut, "Performance Analysis of Cooperative Relaying Scheme Applying TAS/SC," in *IEEE Symposium on Computers and Communications*, Riccione, Italy, 22-25 June 2010.
- [103] B. Yuksel, M. Cingoz, G. Karabulut, S. Oktug, "Call Arrival Model for GSM Network Including Handover," in *3rd IEEE International Symposium on Advanced Networks and Telecommunication Systems*, New Delhi, India, 14-16 Dec. 2009.
- [104] G. Karabulut Kurt, T. Kurt, "Network Planning Metric for Cellular Systems with Adaptive Modulation and Coding," in *Wireless World Research Forum-22*, Paris, France, 5-7 May 2009.
- [105] T. Kurt, G. Karabulut Kurt, A. Yongacoglu, "Throughput Enhancement in Multi-Carrier Systems Employing Overlapping Weyl-Heisenberg Frames," in *IEEE International Conference on Communications*, Dresden, Germany, 14-18 June 2009.
- [106] G. Karabulut Kurt, C. Sahin, "Channel Estimation Error Compensation in OFDM Based Multi-Carrier Systems," in *IET Waveform Diversity and Digital Radar Conference*, London, England, 9 Dec. 2008.
- [107] G. Karabulut Kurt, "Location Estimation by Basis Selection Algorithms," in *Wireless World Research Forum-21*, Stockholm, Sweden, 13-15 July 2008.
- [108] G. Karabulut, T. Kurt, A. Yongacoglu, "Blind Channel Estimation and Multi-user Detection for Wireless CDMA using Matching Pursuit," in *IEEE International Conference on Communications*, Istanbul, Turkey, 11-15 June 2006.
- [109] T. Kurt, G. Karabulut, A. Yongacoglu, "Optical CDMA Detection by Orthogonal Matching Pursuit," in *International Conference on Acoustics, Speech, and Signal Processing*, Philadelphia, US, 18-23 March 2005.
- [110] G. Karabulut, T. Kurt, A. Yongacoglu, "Adaptive Resolution by Matching Pursuit Algorithms," in *European Conference on Signal Processing*, Antalya, Turkey, 29 June-2 July Sept. 2005. **Invited Paper**

- [111] G. Karabulut, A. Yongacoglu, "Estimation of Time-Varying Channels with Orthogonal Matching Pursuit Algorithm," in *IEEE Sarnoff Symposium*, Princeton, US, 18-19 April 2005.
- [112] G. Karabulut, T. Kurt, A. Yongacoglu, "High Resolution Estimation of Directions of Arrival," in *IEEE Vehicular Technology Conference*, Stockholm, Sweden, 30 May-1 June, 2005.
- [113] G. Karabulut, L. Moura, D. Panario, A. Yongacoglu, "Flexible Tree-Search based Orthogonal Matching Pursuit," in *International Conference on Acoustics, Speech, and Signal Processing*, Philadelphia, US, 18-23 March 2005.
- [114] G. Karabulut, T. Kurt, A. Yongacoglu, "Angle of Arrival Detection by Matching Pursuit Algorithm," in *IEEE Vehicular Technology Conference*, Los Angeles, US, 26-29 Sept. 2004.
- [115] G. Karabulut, A. Yongacoglu, "Sparse Channel Estimation Using Orthogonal Matching Pursuit Algorithm," in *IEEE Vehicular Technology Conference*, Los Angeles, US, 26-29 Sept. 2004.
- [116] G. Karabulut, A. Yongacoglu, "Multiple Description Coding Using Orthogonal Matching Pursuit," in *Third Annual Mediterranean Ad-Hoc Networking Workshop*, Bodrum, Turkey, 27-30 June 2004.
- [117] G.Z. Karabulut, D. Panario, A. Yongacoglu, "Integer to Integer Karhunen Loeve Transform Over Finite Fields," in *International Conference on Acoustics, Speech, and Signal Processing*, Montreal, Canada, 17-21 May 2004.
- [118] G. Karabulut, A. Yongacoglu, "Rate Design Rule for Superposition Coded Modulation," in *Canadian Conference on Electrical and Computer Engineering*, Niagara, Canada, 2-5 May 2004.
- [119] G. Karabulut, A. Yongacoglu, "Rate Design Rule for Rayleigh Fading Channels with Interleaving," in *IEEE Symposium on Computers and Communications*, Antalya, Turkey, 30 June-3 July, June 2003.
- [120] G. Karabulut, A. Yongacoglu, "Superposition Block Coded Modulation," in *Canadian Conference on Electrical and Computer Engineering*, Montreal, Canada, 4-7 May 2003.
- PEER-REVIEWED NATIONAL CONFERENCE PUBLICATIONS (in Turkish)
- [121] G. Kirman, K. Tekbiyik, G. Karabulut Kurt, and S. Yarkan, "A Comparison on Energy Detector and CNN-based Detector," in *28th Signal Processing and Communications Applications Conference (SIU)*, 20-22 April 2020.
- [122] K. Tekbiyik, G. Kirman, A.R. Ekti, S. Yarkan, and G. Karabulut Kurt, "Measurement Based LOS/NLOS Signal Detection for Terahertz Communication: Energy Detector Approach," in *28th Signal Processing and Communications Applications Conference (SIU)*, 20-22 April 2020.
- [123] U. Ozcan, G. Karabulut Kurt, and O. Ozdemir, "Path Loss Effects of Intelligent Reflecting Surface Approaches," in *28th Signal Processing and Communications Applications Conference (SIU)*, 20-22 April 2020.
- [124] O.A. Topal, and G. Karabulut Kurt, "Covert Communication in Cooperative NOMA Networks," in *28th Signal Processing and Communications Applications Conference (SIU)*, 20-22 April 2020.
- [125] A. Kaplan, G. Karabulut Kurt, I. Altunbas, U. Altun, F.A. Onat, and D. Kucukyavuz, "Impact of Channel Estimation on The Performance of OFDM-IM With Barrage Jamming," in *28th Signal Processing and Communications Applications Conference (SIU)*, 20-22 April 2020.

- [126] S. Gecgel, C. Goztepe, and G. Karabulut Kurt, "Antenna Selection on Spatial Modulation: A Machine Learning Approach," in *27th Signal Processing and Communications Applications Conference (SIU)*, 24-26 April 2019.
- [127] M.A. Durmaz, C. Goztepe, M. Toka, O. Kucur, and G. Karabulut Kurt, "Non-Orthogonal Multiple Access System Implementation in Software Defined Radios," in *27th Signal Processing and Communications Applications Conference (SIU)*, 24-26 April 2019.
- [128] E. Durmaz, G. Oke Gunel, G. Ascheid, G. Dartmann, and G. Karabulut Kurt, "The Effect of Jammers in Multi Agent Systems," in *27th Signal Processing and Communications Applications Conference (SIU)*, 24-26 April 2019.
- [129] Z. Khodzhaev, C. Ayyildiz, and G. Karabulut Kurt, "Device Fingerprinting for Authentication," in *International Conference on Electrical and Electronics Engineering (ELECO)*, Bursa, Turkey, November 30-December 01 2018.
- [130] U. Ozcan, and G. Karabulut Kurt, "A Filtering Based Physical Layer Security System," in *International Conference on Electrical and Electronics Engineering (ELECO)*, Bursa, Turkey, November 30-December 01 2018.
- [131] M.A. Durmaz, A. Celik, and G. Karabulut Kurt, "A Detection System Against IMSI Catcher Attacks," in *International Conference on Electrical and Electronics Engineering (ELECO)*, Bursa, Turkey, November 30-December 01 2018.
- [132] K. Cokona, S. Tedik Basaran, E. Durmaz, E. Oral, G. Ascheid, G. Dartmann, and G. Karabulut Kurt, "Effect of Channel Fading on Reaching Consensus in Multi-Agent Systems," in *26th Signal Processing and Communications Applications Conference (SIU)*, May 2018.
- [133] M.O. Demir, G. Karabulut Kurt, G. Dartmann, G. Ascheid, A.E. Pusane, "Security Analysis of Hamming Codes in Relay Aided Networks," in *26th Signal Processing and Communications Applications Conference (SIU)*, May 2018.
- [134] A.Y. Yildirim, and G. Karabulut Kurt, "A Filter Selection Based Physical Layer Security System," in *26th Signal Processing and Communications Applications Conference (SIU)*, May 2018.
- [135] S. Tedik Basaran, and G. Karabulut Kurt, "Relay Selection Techniques for Cooperative Network Coded OFDMA Systems," in *EMO Bilimsel Dergi*, June 2017.
- [136] K. Tekbiyik, H. Alakoca, H. B.Tugrel, C. Ayyildiz, and G. Karabulut Kurt, "Measurement Based Investigation of Cyclostationarity of OFDMA Signals," in *IU-Journal of Electrical and Electronics Engineering*, vol.17, no.2, 2017 (**Invited Paper**).
- [137] T. Ensezgin, S. Gokceli, S. Tedik Basaran, and G. Karabulut Kurt, "Performance Analysis of Deep Space Networks with Network Coded Cooperation," in *IU-Journal of Electrical and Electronics Engineering*, vol.17, no.2, 2017 (**Invited Paper**).
- [138] O. Ozdogan, B. Ozbek, and G. Karabulut Kurt, "Performance of Limited Feedback Secure MISO Systems in Temporally Correlated Channels," in *25th Signal Processing and Communications Applications Conference (SIU)*, May 2017.
- [139] M. Altinsoy, and G. Karabulut Kurt, "Mini Electronic Arm Control via Wireless Communication Module," in *International Conference on Electrical and Electronics Engineering (ELECO)*, Bursa, Turkey, 01-03 December 2016.
- [140] D. U. U. Garip, S. Buyukcorak, and G. Karabulut Kurt, "On the Impact of Channel Models for Indoor Localization," in *International Conference on Electrical and Electronics Engineering (ELECO)*, Bursa, Turkey, 01-03 December 2016.

- [141] K. Tekbiyik, H. Alakoca, H. B. Tugrel, C. Ayyildiz, and G. Karabulut Kurt, "Identification of OFDM Signals using Cyclic Autocorrelation Function," in *International Conference on Electrical and Electronics Engineering (ELECO)*, Bursa, Turkey, 01-03 December 2016.
- [142] S. Gokceli, N. Zhmurov, G. Karabulut Kurt, and B. Ors Yalcin, "Design of an Emergency Building Evacuation System," in *International Conference on Electrical and Electronics Engineering (ELECO)*, Bursa, Turkey, 01-03 December 2016.
- [143] O. Calik, U. Iricioglu, G. Karabulut Kurt, A. E. Pusane, A. S. Demiroglu, and G. Kayik, "Impact of Retransmissions on the Quality of Experience in VoIP Systems," in *International Conference on Electrical and Electronics Engineering (ELECO)*, Bursa, Turkey, 01-03 December 2016.
- [144] O. Calik, T. Ensezin, B. Oztaner, S. Gokceli, S. Tedik Basaran, and G. Karabulut Kurt, "Network Coded Cooperation in Delay Tolerant Networks," in *International Conference on Electrical and Electronics Engineering (ELECO)*, Bursa, Turkey, 01-03 December 2016.
- [145] S. Gokceli, M. Tekpinar, O. A. Topal, S. Tedik Basaran, and G. Karabulut Kurt, "Full-Duplex Transmission: A Software Defined Radio Implementation," in *24th Signal Processing and Communications Applications Conference (SIU)*, May 2016.
- [146] M. Uslu, H. B. Tugrel, G. Karabulut Kurt, and B. Ozbek, "Verification of Channel Reciprocity Implementation in Software Defined Radios," in *24th Signal Processing and Communications Applications Conference (SIU)*, May 2016.
- [147] O. Ozdogan, B. Ozbek, and G. Karabulut Kurt, "Performance of secure multiuser MISO systems with threshold based user selection," in *24th Signal Processing and Communications Applications Conference (SIU)*, May 2016.
- [148] H. B. Tugrel, H. Alakoca, G. Karabulut Kurt, and C. Ayyildiz, "Angle of Arrival (AoA) Estimation by using Software Defined Radios," in *24th Signal Processing and Communications Applications Conference (SIU)*, May 2016.
- [149] D. Erhan, E. Anarim, and G. Karabulut Kurt, "DDoS Attack Detection Using Matching Pursuit Algorithm," in *24th Signal Processing and Communications Applications Conference (SIU)*, May 2016.
- [150] R. V. Senyuva, G. Karabulut Kurt, and E. Anarim "Comparison of Modulation Types in Pilot-based Sparse Channel Estimation for OFDM," in *24th Signal Processing and Communications Applications Conference (SIU)*, May 2016.
- [151] S. Gokceli, H. Alakoca, and G. Karabulut Kurt, "Design and Implementation of A Software Defined Radio Based OFDMA Network," in *23rd Signal Processing and Communications Applications Conference (SIU)*, May 2015.
- [152] M. Uslu, and G. Karabulut Kurt, "The Impact of Filters on the Error Vector Magnitude in Software Defined Radios," in *23rd Signal Processing and Communications Applications Conference (SIU)*, May 2015.
- [153] R. Khan, G. Karabulut Kurt, and I. Altunbas, "Decoding Failure Probability of Random Network Coding Systems in Fading Channels," in *23rd Signal Processing and Communications Applications Conference (SIU)*, May 2015.
- [154] B. Engin, I. Altunbas, S. Tedik Basaran, and G. Karabulut Kurt, "Different Numbers of Subcarrier Allocation in OFDMA Systems via Random Bipartite Graphs," in *23rd Signal Processing and Communications Applications Conference (SIU)*, May 2015.

- [155] S. Tedik Basaran, G. Karabulut Kurt, B. Engin, and I. Altunbas “Joint Power and Subcarrier Allocation in OFDMA Systems,” in *23rd Signal Processing and Communications Applications Conference (SIU)*, May 2015.
- [156] S. Gokceli, and G. Karabulut Kurt, “Implementation of Real Time Channel Based Spectrum Monitoring for 2.4 GHz ISM Band,” in *23rd Signal Processing and Communications Applications Conference (SIU)*, May 2015.
- [157] H. Alakoca, M. Karaca, and G. Karabulut Kurt, “The Impact of MAC Layer Parameters in System Performance of 802.11ac Multi-hop Networks,” in *23rd Signal Processing and Communications Applications Conference (SIU)*, May 2015.
- [158] Y. Sabucu, A.E. Pusane, and G. Karabulut Kurt, “Applications of Stable Matching Algorithm in Wireless Communication Systems,” in *23rd Signal Processing and Communications Applications Conference (SIU)*, May 2015.
- [159] M.O. Demir, G. Karabulut Kurt, and M. Karaca “Analysis for Reducing Power Consumption of Wireless Local Area Network Access Points,” in *23rd Signal Processing and Communications Applications Conference (SIU)*, May 2015.
- [160] O. Cepheli, S. Buyukcorak, and G. Karabulut Kurt, “User behaviour modelling based DDoS attack detection,” in *22nd Signal Processing and Communications Applications Conference (SIU)*, April 2014, pp. 2186–2189.
- [161] E. Dalman, M. N. Akinci, and G. Karabulut Kurt, “Modelling of user behaviour in cellular networks,” in *22nd Signal Processing and Communications Applications Conference (SIU)*, April 2014, pp. 2019–2022.
- [162] M. O. Demir, B. Kurt, S. Buyukcorak, G. Karabulut Kurt, T. Cemgil, and E. Zeydan, “Comparison of sampling strategies for flow length estimation,” in *22nd Signal Processing and Communications Applications Conference (SIU)*, April 2014, pp. 2182–2185.
- [163] S. Buyukcorak, T. Erbas, G. Karabulut Kurt, and A. Yongacoglu, “Indoor localization applications,” in *22nd Signal Processing and Communications Applications Conference (SIU)*, April 2014, pp. 1239–1242.
- [164] S. Tedik and G. Karabulut Kurt, “Full-duplex relaying communication,” in *21st Signal Processing and Communications Applications Conference (SIU)*, April 2013, pp. 1–4.
- [165] O. Cepheli and G. Karabulut Kurt, “Analysis on the effects of artificial noise on physical layer security,” in *21st Signal Processing and Communications Applications Conference (SIU)*, April 2013, pp. 1–4.
- [166] S. Aksu and G. Karabulut Kurt, “Analysis of effective capacity under approximate composite fading,” in *21st Signal Processing and Communications Applications Conference (SIU)*, April 2013, pp. 1–4.
- [167] T. Sahiner, G. Karabulut Kurt, and A. Ozbakir, “Green communications via data demand foresight,” in *21st Signal Processing and Communications Applications Conference (SIU)*, April 2013, pp. 1–4.
- [168] M. Vural and G. Karabulut Kurt, “Effect of cooperative communications on power consumption in smart grid,” in *21st Signal Processing and Communications Applications Conference (SIU)*, April 2013, pp. 1–4.
- [169] H. Sokullu, A. Salarvan, F. Sadic, T. Kuyel, and G. Karabulut Kurt, “Analog-to-digital converter effects on orthogonal frequency division multiplexing performance,” in *21st Signal Processing and Communications Applications Conference (SIU)*, April 2013, pp. 1–4.

- [170] I. Ates, O. Cepheli, and G. Karabulut Kurt, "Speech quality estimation in MIMO-OFDM systems," in *21st Signal Processing and Communications Applications Conference (SIU)*, April 2013, pp. 1–4.
- [171] D. Erhan, E. Anarim, G. Karabulut Kurt, and R. Kosar, "Effect of DDoS attacks on traffic features," in *21st Signal Processing and Communications Applications Conference (SIU)*, April 2013, pp. 1–4.
- [172] C. Ozdag, T. Kuyel, G. Karabulut Kurt, and A. Salarvan, "Digital-to-analog converter effects on orthogonal frequency division multiplexing performance," in *21st Signal Processing and Communications Applications Conference (SIU)*, April 2013, pp. 1–4.
- [173] S. Buyukcorak, G. Toprakkiran, and G. Karabulut Kurt, "Call holding time analysis in cellular networks," in *21st Signal Processing and Communications Applications Conference (SIU)*, April 2013, pp. 1–4.
- [174] A. Olmez, G. Karabulut Kurt, and A. Yongacoglu, "The effect of beamforming to service outage probability in femtocell deployments," in *20th Signal Processing and Communications Applications Conference (SIU)*, April 2012, pp. 1–4.
- [175] S. Buyukcorak and G. Karabulut Kurt, "MIMO channel capacity measurements," in *20th Signal Processing and Communications Applications Conference (SIU)*, April 2012, pp. 1–4.
- [176] S. M. Mousavi, S. Aksu, and G. Karabulut Kurt, "Voice over ZigBee wireless sensor network applications," in *20th Signal Processing and Communications Applications Conference (SIU)*, April 2012, pp. 1–4.
- [177] G. Karabulut Kurt, "The effect of sampling frequency offset on data transmission rates in OFDM systems," in *20th Signal Processing and Communications Applications Conference (SIU)*, April 2012, pp. 1–4.
- [178] S. Aksu and G. Karabulut Kurt, "Effects of propagation path loss on the quality of VoIP over wireless mesh networks," in *19th Conference on Signal Processing and Communications Applications (SIU)*, April 2011, pp. 912–915.
- [179] V. R. Senyuva, E. Anarim, and G. Karabulut Kurt, "Application of barrier algorithm in signal reconstruction via compressive sampling," in *19th Conference on Signal Processing and Communications Applications (SIU)*, April 2011, pp. 873–876.
- [180] B. Yuksel, M. Cingoz, G. Karabulut, and S. Oktug, "Model of call arrivals for GSM traffic with empirical data," in *18th Signal Processing and Communications Applications Conference (SIU)*, April 2010, pp. 527–530.
- [181] A. Akan and G. Karabulut Kurt, "Multi-carrier data transmission tests for land-line channels," in *First Avionics and System Integration Symposium (ASES)*, 2010.
- [182] I. Karaevli, I. Altunbas, and G. Karabulut, "Error performance of multiple antenna relay system applying transmit antenna selection and selection combining," in *Proc. of 3rd Communication Technologies and Applications Symposium*, December 2009.
- [183] G. Karabulut Kurt and T. Kurt, "Capacity optimization in systems with AMC," in *17th Signal Processing and Communications Applications Conference (SIU)*, April 2009, pp. 908–911.
- [184] G. Karabulut, "Location estimation MIMO systems," in *Proc. of 2nd Communication Technologies and Applications Symposium*, Oct 2008.

- [185] G. Karabulut, T. Kurt, and A. Yongacoglu, “Applications of basis selection algorithms in communication problems,” in *14th Signal Processing and Communications Applications (SIU)*, April 2006, pp. 1–4.
- [186] C. E. Erdem, G. Karabulut Kurt, E. Yanmaz, and E. Anarim, “Motion estimation in the frequency domain using fuzzy c-planes clustering,” in *14th Signal Processing and Communications Applications (SIU)*, April 2001, pp. 1–4.

INVITED TALKS

- [1] G. Karabulut Kurt, “Learning-Driven Physical Layer: Opportunities and Challenges through a Measurement-based Perspective,” Keynote, *2020-2021 Carleton 6G Workshop 3: AI/ML for Wireless Communications and Networks*, Feb. 16, 2020.
- [2] G. Karabulut Kurt, “On the Security of Wireless Systems: A Cyber-Physical System Perspective,” TUTORIAL, *IEEE International Black Sea Conference on Communications (BlackSeaCom)*, Virtual Conference, May 26, 2020.
- [3] G. Karabulut Kurt, “On the Use of Machine Learning in Wireless Networks: Past, Present and the Future,” *Carleton University Systems and Computer Engineering Online Wireless Seminar Series*, Ottawa, Canada, May 21, 2020.
- [4] G. Karabulut Kurt, “A Security Framework for Wireless Cyber-Physical Systems,” *Ecole de Technologie Supérieure*, Montreal, Canada, May 14, 2020.
- [5] G. Karabulut Kurt, “Store-process-and-forward Paradigm for Wireless Networks,” *Ecole de Technologie Supérieure*, Montreal, Canada, Dec. 04, 2019.
- [6] G. Karabulut Kurt (Panel Member), “Challenges and Opportunities for Integrated Ground-Air-Space Communications: Perspectives from Industry and Academia,” *Integrated Ground-Air-Space Borne Communications (IGASC) Workshop, IEEE International Conference on Wireless for Space and Extreme Environments (WISEE)*, Ottawa, Canada, Oct. 17, 2019.
- [7] G. Karabulut Kurt, “Consensus Analysis in Multi-Agent Communication Systems,” in *Special Session, 27th Signal Processing and Communications Applications Conference (SIU)*, Sivas, Turkey, April 25, 2019.
- [8] G. Karabulut Kurt, “Physical Layer Security for Cyber-physical Systems,” in *ASELSAN Communications Technology Workshop*, Ankara, Turkey, February 18, 2019.
- [9] G. Karabulut Kurt, “Physical Layer Security of Multi-agent Cyber-physical Systems,” *IEEE 5G/IoT Summit*, Thessaloniki, Greece, Oct. 25, 2018.
- [10] G. Karabulut Kurt (Panel Member), “Women in Communications Engineering (WICE) Panel,” *Global Information Infrastructure and Networking Symposium (GIIS)*, Thessaloniki, Greece, Oct. 25, 2018.
- [11] G. Karabulut Kurt, “UF-OFDM in Massive MIMO: An Implementation Perspective,” *NI Academic & Research Forum 2018 - Keynote speaker*, Bayreuth, Lebanon, Oct. 12, 2018.
- [12] M. A. Durmaz, S. Gecgel, O. A. Topal, N. Zhmurov, G. Karabulut Kurt, “PHY Based Jamming Attacks and Countermeasures: An Observation via Real-Time Test System,” *19th IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*, Kalamata, Greece, June 25-28, 2018 (**Invited Exhibit**).
- [13] G. Karabulut Kurt, “Physical Layer Security for Cyber-physical Systems: Friendly Jammers,” *Winter School 2017 on Internet of Things: Security, Communication & Application Challenges*, Alexander TEI of Thessaloniki (ATEITHE), Thessaloniki, Greece, Dec. 15, 2017.



- [14] G. Karabulut Kurt, "Physical Layer Security for Cyber-physical Systems: Friendly Jamers," *FITCE workshop*, Thessaloniki, Greece, Dec. 15, 2017.
- [15] G. Karabulut Kurt, "Battle of the Waveforms for 5G," *IEEE 5G Summit Greece*, Thessaloniki, Greece, July 11, 2017.
- [16] G. Karabulut Kurt, "Network Coded Cooperative Systems: Testbed and Measurement Results," *University of Toronto*, Toronto, Canada, Sept. 14, 2016.
- [17] G. Karabulut Kurt, "Towards 5G Networks: Main Trends," *NI Days - Keynote speaker*, Bayreuth, Lebanon, May 6, 2016.
- [18] G. Karabulut Kurt, "Network Coded Cooperation Systems," *Kadir Has University*, Istanbul, Turkey, Apr. 1, 2016.
- [19] G. Karabulut Kurt, "Network Coding for Wireless Systems: The Impact of Cooperation," *Middle East Technical University, Institute of Applied Mathematics (IAM)*, Ankara, Turkey, March 22, 2016.
- [20] G. Karabulut Kurt, "Network Coding: A New Perspective in Data Communications," *Izmir Institute of Technology, Comm'On Telecommunication Summit*, Izmir, Turkey, Feb. 24, 2015.
- [21] G. Karabulut Kurt, "Cooperative Network Coding," *University of Ottawa*, Ottawa, Canada, Feb. 8, 2015.
- [22] G. Karabulut Kurt, "Network Coded Cooperation over Wireless Channels," *ANTA/COST Workshop on Algebra, Number Theory, and Applications to Communications and Computing*, Espoo, Finland, Jan. 23, 2015.
- [23] G. Karabulut Kurt, "Network Coding," *Istanbul Technical University Communication Week*, Istanbul, Turkey, Dec. 3, 2014.
- [24] G. Dartmann, V. Luecken, G. Karabulut Kurt, "Different Aspects of Physical Layer Security," *RWTH Aachen ICE & Kadir Has University Joint Workshop on Communication Technologies and Embedded Systems*, Istanbul, 2014.
- [25] G. Karabulut Kurt, "Physical layer network coding for full duplex nodes," *Algebraic Approaches to Storage and Network Coding, COST 1104 Symposium*, Barcelona, 2014.
- [26] G. Karabulut Kurt, "Physical Layer Security in Wireless Communication Networks," *RWTH Aachen University*, Aachen, 2013.
- [27] G. Karabulut Kurt, "PHY Security Applications in Multiantenna Systems," *TUBITAK (Scientific and Technological Research Council of Turkey)*, Gebze, 2012.
- [28] O. Cepheli, G. Karabulut Kurt, "Effects of Channel Estimation Error in AN-aided Beamforming," *MASFOR Symposium*, Istanbul, 2012.
- [29] S. Tedik, G. Karabulut Kurt, "Investigation of Channel Estimation Error in Full-Duplex Systems," *MASFOR Symposium*, Istanbul, 2012.
- [30] G. Kurt, "Application of Basis Selection Algorithms to Communication Problems," *EURASIP - Workshop on Sparsity and Compressive Sensing*, 2009.

PROJECTS AND  
GRANTS

- [1] Co-Supervisor, MITACS Accelerate, *Topology and handover management scheme for satellite networks to enable seamless terrestrial and satellite networks integration*, Carleton University, 165000 CAD, 2020-2022.
- [2] Co-Principle Investigator, *Jammer Resistant OFDM-IM Transmission Strategies*, ASELSAN, 110000 TL, 2019.
- [3] Researcher, *Secure Visible Light Communication System Designs*, TUBITAK 1003, 490510 TL, 2019-2021.
- [4] Researcher, *Non-Orthogonal Multiple Access Communication Techniques for 5G Networks and Beyond*, TUBITAK 1001, 404208 TL, 2018-2021.
- [5] Joint Principle Investigator, TUBITAK 2525-BMBF with RWTH Aachen University, Germany, *Security in Wireless Cyber-physical Systems (WiseCPS)*, 416327 TL, 2017-2020.
- [6] Principle Investigator, *Improving Localization Accuracy using WiFi Signals*, TUBITAK 1505, 85000 TL, 2017-2020.
- [7] Researcher, *Maintenance and deployment of optical and in-home networks, H-OPTO*, EU CELTIC Plus, 150000 TL, 2018-2020.
- [8] Researcher, *Design and Development of 5G Communication Systems over Software Defined Radio*, TUBITAK (TEYDEB) - ENOVAS, 250000 TL, 2018-2019.
- [9] Researcher, *Design of IMSI Catcher Detectors*, TUBITAK (TEYDEB) - TURKCELL, 100000 TL, 2018-2019.
- [10] Supervisor, *Developing Stretchable Conductive Fibers and their Implementations in Wearable Electronics*, WEARONICS, Marie Sklodowska Curie Individual Fellowships-IF, 157845 EURO, 2018-2019.
- [11] Researcher, *A Secure Voice over IP Transmission System*, TUBITAK (TEYDEB) - NETAS, 40000 TL, 2018.
- [12] Principle Investigator, TURKCELL, *Design and Development of a Security System against DoS Attacks in Mobile Networks*, 1027140 TL, 2015-2018.
- [13] Researcher, *Security and Bandwidth Monitoring in VoIP Applications*, TUBITAK (TEYDEB) - NETAS, 40000 TL, 2016.
- [14] Researcher, TUBITAK 1005, *A Secure Multiple Input Multiple Output Wireless Communication System Based on Spatio-temporal Signature*, 180000TL, 2015-2017.
- [15] Principle Investigator, *Random Network Coding in Wireless Networks*, TUBITAK (2515), COST Action - Random Network Coding And Designs Over GF(q), 373271 TL, 2013 - 2016. *Selected as a Success Story by RTD.*
- [16] Researcher, *BaaS - Building as a Service*, EU FP-7 ITEA 2, 2013-2015,
- [17] Researcher, ADAX - Attack Detection And Countermeasures Simulation, EU FP-7 ITEA 2, 2011-2014, received ITEA Award of Excellence,
- [18] Researcher, *Green Home Gateway Platform and Device*, TUBITAK (TEYDEB) - AIRTIES, 60000 TL, 2013-2014.
- [19] Researcher, *Estimation of Flow Size Distributions from Real-time Traffic: Data Capturing and Online Estimation*, TUBITAK (TEYDEB) - AVEA, 45000 TL, 2013-2014.

- [20] Principle Investigator, *Resource Management Perspective in Energy Harvesting from RF Signals: Simulation and Test Platform Set-up*, Turk-Telekom/Argela R&D Grant, 60000 TL, 2013-2014.
- [21] Principle Investigator, *Interference Management System for Multi-Antenna Wideband Cognitive Radio Networks*, ITU BAP (Young Researcher), 50000 TL, 2012-2014.
- [22] Researcher, *Design and Application of Wideband Cognitive Radio Networks*, Istanbul Chamber of Industry, 2011-2014.
- [23] Principle Investigator, *User Behavior Modeling System in Mobile Devices*, ITU BAP (MSc Level), 5000 TL, 2012-2014.
- [24] Principle Investigator, *Performance Analysis of Full-Duplex Communication Systems*, ITU BAP (MSc Level), 5000 TL, 2012-2013.
- [25] Principle Investigator, *Quality of Experience Measurements in Wireless Mesh Networks*, ITU BAP (PhD Level), 15000 TL 2012-2014.
- [26] Principle Investigator, *REALMARS - Research on location estimation in multi-carrier systems*, EU FP-7 Marie-Curie Int. Reintegration Grant, 50000 EURO, 2009-2011. *Selected as a Success Story by RTD.*
- [27] Researcher, *Digital Divide Analysis for Information and Communication Technologies: Istanbul Case Study*, Yildiz Technical University BAP, 2012-2014.
- [28] Researcher, *WiMAGIC - Worldwide Interoperability Microwave Broadband Access System for Next Generation Wireless Communications*, EU FP-7 STREP, 2008 - 2010.
- [29] Consultant, *Internet Content Analysis with Ultrasound Transmission*, KOSGEB, 2011-2012.
- [30] Consultant, *Research and Development Strategy*, Turkcell, 2010-2011.

THESES  
SUPERVISIONS -  
ONGOING

**PhD Candidates:**

- Olfa Ben Yahia
- Serkan Calimli
- Yucel Aydin (Co-supervisor with Enver Ozdemir)
- Selen Gecgel
- Kursat Tekbiyik
- Caner Goztepe
- Ozan Alp Topal

**MSc Candidates:**

- Mirac Kumral
- Efe Yuksekkaya

PHD THESES  
SUPERVISIONS -  
COMPLETED

**Semiha Tedik Basaran**

PhD Thesis, *Relaying Opportunities for Wireless Networks by Applying Network Coding*, ITU, June 2019. **Received the IEEE Turkey Doctoral Dissertation Award**

**Yagmur Sabucu**

PhD Thesis, *Stable-Matching Based Resource Allocation Methods in Wireless Communication Systems*, Bogazici University (Co-supervision with Prof. Ali E. Pusane), June 2019.

**Gediz Sezgin**

PhD Thesis, *Reducing the Effects of Jammers in Wireless Communications Systems*, ITU, May 2019.

MSC THESES  
SUPERVISIONS -  
COMPLETED

**Saliha Buyukcorak**

PhD Thesis, *A Generalized Localization Framework for Terrestrial and Aerial Systems*, ITU, February 2019.

**Dogay Altinel**

PhD Thesis, *Energy Harvesting Systems for Next Generation Wireless Communication Networks*, ITU, January 2019.

**Ozge Cepheli**

PhD Thesis, *Next Generation Physical Layer Security Framework for Wireless Communications*, ITU, June 2017.

**Mehmet Akif Durmaz**

MSc Thesis, *Design and Performance Analysis of Non-Orthogonal Multiple Access Systems using Software Defined Radio Nodes*, ITU, January 2021.

**Ufuk Altun**

MSc Thesis, *Simultaneous Transmission Based Communication Techniques*, ITU, June 2020.

**Enes Dursun**

MSc Thesis, *Parameter Optimization For OFDM Systems Using Reinforcement Learning Techniques*, ITU, June 2020.

**Mert Eygi**

MSc Thesis, *Analysis, Detection and Prevention of LTE Physical Layer Jamming Attacks*, ITU, December 2019.

**Selen Gecgel**

MSc Thesis, *Artificial Intelligence Based Detection Schemes for Secure Wireless Communication*, ITU, May 2019.

**Ozan Alp Topal**

MSc Thesis, *Covert Communication Applications in Physical Layer Security*, ITU, May 2019.

**Kursat Tekbiyik**

MSc Thesis, *Modeling and Characterization of a Propagation Channel for Terahertz Wireless Communications*, ITU, May 2019.

**Omer Faruk Topal**

MSc Thesis, *Performance Evaluation on the Spatial Reuse Techniques of Next Generation WLANs*, ITU, May 2019.

**Caner Goztepe**

MSc Thesis, *Design and Implementation of Beyond 5G Physical Layer Schemes*, ITU, May 2019.

**Selahattin Gokceli**

MSc Thesis, *5G Waveform Design and Software Defined Radio Based Proof of Concept Implementations*, ITU, June 2017.

**Amir Eslami**

MSc Thesis, *Improving the Performance and Developing a New Covariance Based Spectrum Sensing Method*, ITU, June 2017.

**Ozgun Demir**

MSc Thesis, *The Information Theoretical Privacy and the Impact of Communication Channel on Information Theoretic Privacy*, ITU, January 2017.

**Gorkem Ozvural**

MSc Thesis, *System Design for Internet of Things and Network Coding Applications in the Wireless Personal Area Networks*, ITU, May 2015.

**Kaan Dandin**

MSc Thesis, *Dynamic Load Management for IMS Networks Using Network Function Virtualization*, ITU, January 2015.

**Dogay Altinel**

MSc Thesis, *RF Energy Harvesting in Wireless Communication Systems: Statistical Models for Battery Recharging Time*, ITU, June 2014.

**Metin Vural**

MSc Thesis, *Lognormal Mixture Shadowing and Applications*, ITU, January 2014.

**Khalid Mahmood**

MSc Thesis, *Mode Selection Rules For Device-to-Device Communication: Design Criteria and Performance Metrics*, ITU, January 2014.

**Semiha Tedik**

MSc Thesis, *Full-Duplex Communication Systems: Performance Analysis and Relay Applications*, ITU, June 2013.

**Tugra Sahiner**

MSc Thesis, *Transmit Power Optimization Based on User Demand*, ITU, June 2013.

**Okan Cengaver**

MSc Thesis, *Indicator of Experience for Mobile Data Networks*, ITU, January 2013.

BSC GRADUATION  
PROJECTS -  
COMPLETED

**Ugur Ozcan**, *Intelligent Reflecting Surfaces to Increase The Received Signal Power in Wireless Communication Systems*, August 2020 (Joint Supervision with Prof. Ozgur Ozdemir).

**Ayşe Sayin, Efe Yuksekkaya, Elif Ecem Akbaba**, *Machine Learning Applications in Wireless Communication Networks: Interference Detection and Authentication Aspects*, August 2019.

**Ezgi Oral, Emre Durmaz, Fatih Kucuk**, *The Impact of Wireless Channels on Consensus Analysis of Wireless Multi-Agent Systems*, June 2019.

**Zulfidin Khodzhaev**, *Machine Learning Applications in Wireless Communication Networks: Interference Detection and Authentication Aspects*, June 2019.

**Ziya Ekin, Eray Guven, Buse Genc**, *Waveform Designs for Massive-MIMO Systems*, June 2019.

**Bugra Kadir Arıkan, Kimon Cokona**, *A Collective Computing Clock Synchronization Algorithm Utilizing Superposition*, June 2018.

**Mert Can Kurt, Cagri Cetin, Ali Yilmaz Yildirim**, *Physical-layer based Attacks and Countermeasures in Wireless Networks*, June 2018.

**Ozan Kazanci, Mirac Kumral**, *Wearable Electronics Applications using Stretchable Conductive Fibers*, June 2018.

**Esra Saraykoy, Burhan Oztaner**, *A Low Latency Communication Framework for Wireless Sensor Networks: Network Coding Based Techniques*, June 2018.

**Ozan Alp Topal**, *Physical Layer based Secret Key Extraction*, June 2017.

**Yagmur Coskun**, *Physical Layer based DoS And DDoS Attacks on LTE/LTE-Advanced Networks*, June 2017.

**Kursat Tekbiyik**, *Applications of Cyclic Autocorrelation Function for Signal Identification in Wireless Systems*, June 2017.

**Mehmet Akif Durmaz**, *Quantification of Performance Degradation in LTE Networks Due to Presence of Jammers*, June 2017.

**Tuana Ensezgin**, *Network Coding in Delay Tolerant Networks*, June 2017.

**Onur Calik**, *Quality of Experience Estimation in Wireless VoIP Applications*, June 2017.

**Deniz Ufuk Uras Garip**, *Indoor Localization Techniques and Applications*, June 2017.

**Ufuk Altun**, *A Wireless Calculator*, January 2017.

**Merve Uslu**, *Physical Layer Security Applications by using Software Defined Radio Nodes*, June 2016.

**Buse Canli**, *Carrier Frequency Offset Estimation and Compensation in OFDM and UPMC Systems*, June 2016.

**Selahattin Gokceli**, *Software Defined Radio Applications: Spectrum Sensing, OFDMA and Network Coding*, June 2015.

**Hakan Alakoca**, *Optimization of Wireless Mesh Networks with Multiple Hops*, June 2015.

**Nurefsan Sertbas**, *Channel Estimation in OFDM Systems*, June 2015.

**Hizir Emre Mete**, *Design of OFDM/OFDMA Transceiver and Investigation of Carrier Frequency Offsets*, June 2015.

**Utku Yurttas**, *Indoor Localization using Ultrasonic Signals: Coordination Perspective*, June 2015.

**Guven Toprakkiran**, *Network Traffic Anomaly Analysis*, June 2014.

**Basaran Badur**, *Network Coding Tests with Raspberry Pi's*, June 2014.

**Engin Dalman**, *User Behaviour Analysis in Packet Transmission Networks*, June 2014.

**Bora Orgen**, *A Novel Approach for Location Estimation Based on Angular Quantization*, August 2013.

**Ilknur Ates**, *Audio Quality Estimation in MIMO-OFDM Systems*, June 2013.

**Bekir Onur Bozturk**, *Processing Sensor Data from Mobile Devices*, June 2013.

**Anil Sabri Baytar**, *Audio Transmission and Quality Measurements over Internet Protocol*, June 2013.

**Metin Vural**, *Analysis of Wireless Sensor Networks on Smart-Grids*, June 2012.

**Seyed Mohsen Mousavi**, *Routing Algorithms in ZigBee Wireless Sensor Networks*, June 2012.

**Asli Olmez**, *The Impact of Femtocell Beamforming on Service Outage Probability*, June 2011.

**H. Faruk Uslu**, *IMS Based User Notification Service Development*, June 2011.

**Saliha Buyukcorak**, *Channel Modeling in Multi-antenna Systems with Optical Ray Tracing*, June 2011.

**Enver Enis Gungor**, *Designing Routing Metrics for Mesh Networks*, January 2011.

**Enver Bahar**, *Location Estimation in a Rough Wireless Environment Using Extended Kalman Based Interacting Multiple Model and Data Fusion in Multi-Carrier Systems*, January 2011.

RECENT TEACHING **2020-2021 Fall:**

EXPERIENCE

- Mobile Communication Systems (Graduate Level)
- Analog Communications

**2018-2019 Spring:**

- Advanced Topics in Telecommunications - Physical Layer Security Systems (Graduate Level)
- Design and Application of Digital Communication Systems
- Wireless Communication Networks
- Analog Communications

**2018-2019 Fall:**

- Mobile Communication Systems (Graduate Level)
- Data Communications
- Design and Application of Basic Communication Systems

**Further Courses:**

- Seminar (Graduate Level)
- Advanced Topics in Telecommunications - Multi-carrier/Multi-antenna Communication Systems (Graduate Level)

PROFESSIONAL SERVICES

**Committee Memberships**

- Scientific and Technological Research Council of Turkey (TUBITAK): TEYDEB, ARDEB
- Turkish Ministry of Science, Industry and Technology: SANTEZ
- EU Independent Expert: FP-7, Horizon2020

**Editorial Services**

- Associate Technical Editor of the *IEEE Communications Magazine*.
- Associate Editor of *System and Test-Bed Design, specialty section of Frontiers in Communications and Networks*.
- *Turkish Journal of Electrical Engineering & Computer Sciences*, editorial board member
- *Wireless Communications and Mobile Computing*, Special Issue: Non-orthogonal Multiple Access (NOMA) for 5G and Beyond, Guest editor.

**Referee Services**

- Journals
  - *China Communications*
  - *ELSEVIER Computer Networks*
  - *ELSEVIER Digital Signal Processing*
  - *ETRI Journal*
  - *IEEE Communications Surveys and Tutorials*
  - *IEEE Communication Letters*
  - *IEEE Communications Magazine*
  - *IEEE Microwave and Wireless Components Letters*
  - *IEEE Signal Processing Letters*
  - *IEEE Transactions on Communications*
  - *IEEE Transactions on Industrial Electronics*
  - *IEEE Transactions on Industrial Informatics*
  - *IEEE Transactions on Intelligent Transportation Systems*
  - *IEEE Transactions on Mobile Computing*
  - *IEEE Transactions on Vehicular Technology*
  - *IEEE Transactions on Wireless Communications*
  - *IEEE Wireless Communications*
  - *IEEE Wireless Communications Letters*
  - *IET Communications*

- *IET Signal Processing*
- *International Journal of Communication Systems*
- *Journal of Lightwave Technology*
- *Journal of Computer Networks and Communications*
- *Physical Communication*
- *Telecommunication Systems*
- *Turkish Journal of Electrical Engineering & Computer Sciences*
- *MDPI Sensors*
- *Wireless Communications & Mobile Computing*
- *Wireless Personal Communications*

#### **TPC Memberships**

- Member of IEEE Wireless Communications and Networking Conference (WCNC) Steering Committee (2021-2023)
- 2021 IEEE ICC Workshop: *Satellite Mega-Constellations in the 6G Era: Unprecedented Opportunities and Unprecedented Challenges*, TPC Co-Chair
- 2021, 2020, 2019 Personal, Indoor and Mobile Radio Communications (PIMRC)
- 2021 Joint European Conference on Networks and Communications & 6G Summit (Eu-CNC/6G Summit): 6G Visions (6GV), 6G Enabling Technologies (6ET)
- 2021, 2020, 2019 IEEE Vehicular Technology Conference (VTC) Spring & Fall
- 2020 IEEE GLOBECOM Workshop: *5G and Beyond Wireless Security*
- 2020 IEEE International Black Sea Conference on Communications and Networking (Black-SeaCom), Recent Results, Co-chair with Evgeny Khorov
- 2020 6G Wireless Summit
- 2020, 2019, 2018, 2012 IEEE Ninth International Symposium on Wireless Communication Systems (ISWCS)
- 2020 IEEE INFOCOM Workshop, Second International Workshop on Data Driven Intelligence for Networks and Systems (DDINS)
- 2020, 2019 International Wireless Communications and Mobile Computing Conference (IWCMC)
- 2020, 2019, 2018, 2017, 2016, 2015, 2014, 2013 IEEE International Conferences on Signal Processing and Communication Systems (ICSPCS)
- 2020 International Conference on Ubiquitous and Future Networks (ICUFN)
- 2019 PIMRC Patronage and Exhibits Co-chair
- 2019 Wireless Days
- 2019 International Balkan Conference on Communications and Networking (BalkanCom)
- 2019, 2018, 2017 IEEE International Black Sea Conference on Communications and Networking (BlackSeaCom)
- 2019 IEEE ICC Workshops: First International Workshop on Data Driven Intelligence for Networks and Systems (DDINS)
- 2019 International Conference on Telecommunications (ICT)
- 2019 International Conference on Ubiquitous and Future Networks (ICUFN)



- 2019, 2018, 2016, 2015, 2014, 2013, 2012 IEEE Sinyal Isleme ve İletisim Uygulamaları Kurultayı (SIU)
- 2018 Global Information Infrastructure and Networking Symposium (GIIS), Track 1 Co-chair: Next Generation Networking and Communications
- 2018, 2017 Globecom International Workshop on Emerging Technologies for 5G and Beyond Wireless and Mobile Networks
- 2018, 2017 Advances in Wireless and Optical Communications (RTUWO)
- 2017 IEEE International Conference on Electronics, Circuits and Systems (ICECS)
- 2017 IEEE ISCC Workshop Co-chair
- 2017 IEEE International Conference on Telecommunications (ICT)
- 2017 Conference on Electrical and Electronics Engineering (ELECO)
- 2016 Conference on Electrical and Electronics Engineering (ELECO) Special Session on "System Design and Real-life Applications for IoT" Co-chair
- 2016 Globecom Workshop: Emerging Technologies for 5G Wireless Cellular Networks
- 2016 Sinyal Isleme ve İletisim Uygulamaları Kurultayı (SIU) Special Session on "5G Communication Technique Candidates" Co-chair
- 2016 IEEE ICT Tutorial Co-chair
- 2016 IEEE/IFIP NOMS Local Organization Committee Member
- 2015 Design and Application of Random Network Codes (DARNEC), Co-chair (COST 1104 Supported)
- 2017, 2016, 2015, 2014, 2013, 2012 IEEE Symposium on Computers and Communications (ISCC)
- 2015, 2014, 2013, 2012 International Conference on Advances in Vehicular Systems, Technologies and Applications (VEHICULAR)
- 2012 IEEE 76th Vehicular Technology Conference (VTC)
- 2011 International Wireless Communications & Mobile Computing Conference (IWCMC)
- 2012 IEEE ISCC 2012 Local Organization Committee Member

PROFESSIONAL  
MEMBERSHIP

Institute for Electrical and Electronics Engineers (IEEE),  
*Senior Member*, 2000–present, (*St.M* 2000, *M* 2006, *SM* 2015)  
IEEE Turkey Section Vice-Chair (2016-2017, 2018-2019)