

# Sinem Coleri Ergen

Associate Professor, Electrical and Electronics Engineering  
Director, Wireless Networks Laboratory

Department of Electrical and Electronics Engineering  
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## EDUCATION

- 01/2003-12/2005: **Ph.D.** in Electrical Engineering and Computer Sciences  
University of California, Berkeley, CA, USA  
**Thesis:** Wireless Sensor Networks: Energy Efficiency, Delay Guarantee and Fault Tolerance  
**Advisor:** Prof. Pravin Varaiya
- 08/2002-12/2004: **M.O.T. Management of Technology**  
University of California, Berkeley, CA, USA
- 08/2000-12/2002: **M.S.** in Electrical Engineering and Computer Sciences  
University of California, Berkeley, CA, USA  
**Thesis:** PEDAMACS: Power Efficient and Delay Aware Medium Access Protocol for Sensor Networks  
**Advisor:** Prof. Pravin Varaiya
- 09/1995-06/2000: **B.S.** in Electrical and Electronics Engineering  
Bilkent University, Ankara, Turkey  
**Advisor:** Prof. Erdal Arıkan  
**GPA:** 3.97/4.00

## EXPERIENCE

- 02/2016-present: **Associate Professor**, Electrical and Electronics Engineering  
Koc University, Istanbul, Turkey
- 09/2009-02/2016: **Assistant Professor**, Electrical and Electronics Engineering  
Koc University, Istanbul, Turkey
- 06/2012-09/2012: **Visiting Research Scholar**, Electrical Engineering and Computer Sciences  
University of California, Berkeley, CA, USA

06/2011-09/2011: **Visiting Research Scholar**, Electrical Engineering and Computer Sciences  
University of California, Berkeley, CA, USA

07/2006-08/2009: **Research Scientist**, Wireless Sensor Networks Berkeley Lab  
Pirelli and Telecom Italia, Berkeley, CA, USA  
**Advisor:** Prof. Alberto Sangiovanni-Vincentelli

01/2006-06/2006: **Postdoctoral Researcher**, Electrical Engineering and Computer Sciences  
University of California, Berkeley, CA, USA  
**Advisor:** Prof. Pravin Varaiya

10/2004-06/2006: **Consultant**, Sensys Networks, Berkeley, CA  
Sensys Networks is a start-up company that develops vehicle detection products based on ultra-low-power wireless sensor networking.

08/2000-12/2005: **Graduate Student Researcher**, Electrical Engineering and Computer Sciences  
University of California, Berkeley, CA, USA  
**Advisor:** Prof. Pravin Varaiya

06/2004-08/2004: **Research Intern**, Wireless Communication Division  
National Semiconductor, San Jose, CA

10/1999-05/2000: **Part-time Engineer**, Microwave and System Technologies Division  
ASELSAN, Ankara, Turkey

## **TEACHING EXPERIENCE**

ELEC 428/COMP 428/ELEC 528: Wireless Networks, Koc University  
Fall 2010, Fall 2011, Fall 2012, Fall 2014

ELEC 411/ ELEC 511: Digital Communications, Koc University  
Spring 2010, Spring 2011, Fall 2011, Fall 2012, Fall 2014, Fall 2015, Fall 2016, Fall 2017

ELEC 316: Analog and Digital Communication Systems, Koc University  
Fall 2009, Fall 2010, Spring 2012, Spring 2013, Spring 2014, Spring 2015, Spring 2016, Spring 2017

ENGR 200: Probability and Statistical Methods for Engineers, Koc University  
Spring 2011, Spring 2012, Spring 2013, Spring 2014, Spring 2015, Spring 2016, Spring 2017

ELEC 311: Digital Integrated Circuits, Koc University  
Spring 2010

EECS 126: Probability and Random Processes, University of California Berkeley  
Spring 2002

## **RESEARCH GRANTS**

**Source:** Ministry of Science and Technology IPA II

**Title:** AutoCUp - Automotive Value Chain Collaborative Upgrading

**Duty:** Researcher

**Duration:** 2018-2020

**Source:** TUBITAK (The Scientific and Technological Research Council of Turkey)

**Title:** Radio Frequency Energy Harvesting based Communication Protocol Design for Time Critical Wireless Sensor Networks

**Duty:** Principal Investigator

**Duration:** 2017-2020

**Source:** Turk Telekom

**Title:** Energy Efficient Machine-to-Machine Communications

**Duty:** Principal Investigator

**Duration:** 2013-2016

**Source:** TUBITAK (The Scientific and Technological Research Council of Turkey)

**Title:** Energy Efficient Robust Communication Network Design for Wireless Networked Control Systems

**Duty:** Principal Investigator

**Duration:** 2013-2016

**Source:** Turk Telekom

**Title:** Cross-Layer Epidemic Protocol Design for Inter-vehicular Communication Networks

**Duty:** Principal Investigator

**Duration:** 2012-2015

**Source:** Marie Curie Reintegration Grant

**Title:** Intra-Vehicular Wireless Sensor Networks

**Duty:** Principal Investigator

**Duration:** 2010-2014

**Source:** Istanbul Metropolitan Municipality

**Title:** Magnetic Sensor Networks for Traffic Monitoring

**Duty:** Principal Investigator

**Duration:** 2011-2012

**Source:** University of California Berkeley

**Title:** RSSI based Localization of Mobile Phones

**Duty:** Principal Investigator

**Duration:** 2010-2012

## **HONORS & AWARDS**

2017: IEEE Communications Letters Exemplary Editor Award.

2017: METU- Prof. Dr. Mustafa Parlar Foundation Research Encouragement Award.

2017: Advisor to doctoral thesis receiving IEEE Turkey Best Doctoral Thesis Award.

2017: Selected as Member of NSERC Electrical & Computer Engineering Evaluation Group.

2017: Advisor to doctoral thesis receiving 2017 GSSE Academic Excellence Award at Koc University.

2016: IEEE Communications Letters Exemplary Editor Award.

2016: Elevated to IEEE Senior Membership.

2016: Science Heroes Association - Scientist of The Year Award.

2015: Turkish Academy of Sciences Distinguished Young Scientist (TUBA-GEBIP) Award.

2015: TAF (Turkish Academic Fellowship) Network - Outstanding Scientist Award.

2014: Docent Title from the Council of Higher Education (YOK).

2014: Science Academy Young Scientist (BAGEP) Award.

2012: Turk Telekom Collaborative Research Award.

2012: Best Student Poster Award, ACM Mobicom S3 Workshop.

2011: Turk Telekom Collaborative Research Award.

2011: Advisor to Best Senior Design Project in Electrical and Electronics Engineering Department at Koc University.

2010: Marie Curie Reintegration Grant.

2010: TUBITAK (Scientific and Technological Research Council of Turkey) Grant Encouragement Award.

2000: University of California Regents Fellowship.

2000: Princeton University Fellowship (declined).

2000: Massachusetts Institute of Technology Graduate Research Assistantship (declined).

2000: Salutatorian- Ranked second in the Electrical and Electronics Engineering Department and in the University.

1995-2000: Dean's office high honor list in all semesters at Bilkent University.

1995: Bilkent University Full Scholarship.

1995: Scholarship from the Ministry of Education of Turkey to fund any 4-year undergraduate education abroad (did not use it).

1995: Ranked 81<sup>st</sup> in University Placement Examination, OYS, among 1,500,000 test takers.

1995: Ranked 1<sup>st</sup> in Ankara Science Competition.

### **SUPERVISED Ph.D. THESES**

Yalçın Şadi, Optimal Resource Allocation for Delay and Energy Constrained Wireless Networks, 11/2015.

Seyhan Ucar, Visible Light Communication Assisted Secure and Efficient Architecture for Autonomous Platoon, 02/2017. (co-advisor: Oznur Ozkasap)

Merve Saimler, Millimeter-Wave Communication based Cellular Networks, expected in 2018.

Melih Karaman, Device-to-Device Communication in Cellular Networks, expected in 2018.

Bugra Turan, Visible Light Communication Physical Layer Design for Inter-Vehicular Communication Networks, expected in 2019.

Elif Dilek Salik, RF Energy Harvesting for Half Duplex Delay Constrained Communication, expected in 2019.

Syed Adil Abbas Kazmi, Indoor Millimeter Wave Communication in 5G, expected in 2019.

Muhammad Shahid Iqbal, RF Energy Harvesting for Full Duplex Time Critical Wireless Networks, expected in 2020.

Umuralp Kaytaz, QoS Constrained Reliable Multi-Channel Communication over Multi-hop Networks, expected in 2021.

Goksu Karadag, Communication Protocol Design for Wireless Networked Control Systems, expected in 2021.

Aysun Gurur Onalan, RF Energy Harvesting Design for Wireless Networked Control Systems, expected in 2021.

Niloofer Mehrnia, Visible Light Communication Channel Model for Vehicle-to-X Communication, expected in 2021.

Berkay Kopru, Machine Learning based Wireless Communication Algorithm Design, expected in 2021.

### **SUPERVISED M.S. THESES**

C. Ümit Baş, Ultra-Wideband Channel Model for Intra-Vehicular Wireless Sensor Networks, 06/2012.

Yalçın Şadi, Optimal Power Control, Rate Adaptation and Scheduling for UWB-based Intra-vehicular Wireless Sensor Networks, 09/2012.

Nabeel Akhtar, Vehicle Mobility, Communication Channel Modeling and Traffic Density Estimation in VANETs, 06/2013. (co-advisor: Oznur Ozkasap)

Irem Nizamoglu, Epidemic Density Adaptive Data Dissemination Exploiting Opposite Lane in VANETs, 06/2013. (co-advisor: Oznur Ozkasap)

Seyhan Ucar, Multi-Hop Cluster and LTE Based Heterogeneous Architecture for VANET, 09/2013. (co-advisor: Oznur Ozkasap)

Utku Demir, Engine Compartment and Beneath the Chassis UWB Channel Model for Intra-Vehicular Wireless Sensor Networks, 09/2014.

Mehmet Kontik, Minimum Length Scheduling in Wireless Networks with Successive Interference Cancellation, 09/2014.

Bakhtiyar Farayev, Robust and Energy Efficient System Design of Wireless Networked Control Systems, 09/2015.

Anique Akhtar, Directional MAC Protocol for IEEE 802.11ad WLAN, 09/2015.

Recep Gul, QoS Constrained Semi-Persistent Scheduling of Machine Type Communications in Cellular Networks, 12/2016.

Ibrahim Pehlivan, Scheduling of RF Energy Harvesting Networks, expected in 2018.

### **SUPERVISED UNDERGRADUATE PROJECTS**

Said Safi and Yigit Berik, ECG Data Processing for Body Sensor Networks, 10/2009-06/2010.

Ovunc Demir, Step Counter for Health Applications, 10/2009-06/2010.

Onur Uraz, Critical Market Penetration for Vehicular Networks, 02/2010-06/2010.

Emre Demirer and Haluk Aksan, Bicycle Gear Shifting Aid Design, 02/2010-06/2010.

Isinsu Akcetin and Evren Ozer, 3D Computer Mouse based on the Classification of Motion Patterns, 02/2010-06/2010.

C. Umit Bas, Investigating Spatio-Temporal Characteristics of Link Quality in Wireless Sensor Networks, 10/2009-06/2010.

Yalcin Sadi, TDMA based MAC Protocol for Intra-Vehicular Wireless Sensor Networks, 10/2009-06/2010.

Isinsu Akcetin, HMM based Inertial Sensor System for Coaching of Rowing Activity, 10/2010-06/2011.

Zeynep Tutengil, Placement of Road Sensors based on Quantifying Traffic Information, 10/2010-06/2011.

Huseyin Serhat Tetikol, RSSI based Vehicle Positioning, 02/2010-06/2011.

Cem Yildirim and Mehmet Kontik, Sensory Network Cooperative Spectrum Sensing with Soft Combination in Cognitive Radio, 10/2010-06/2011.

Doruk Tirasoglu, Medium Access Control (MAC) Protocol Design for Inter-Vehicular Communication Networks, 10/2010-01/2011.

Doga Yuksel, Analyzing Topology Characteristics of Inter-Vehicular Communication Networks, 10/2010-01/2011.

Erdem Timucin and Seda Doven, Routing Protocol Design for Inter-Vehicular Communication Networks, 10/2010-01/2011.

Utku Demir and Beytullah Yilmaz, Distributed Fault Detection in Wireless Sensor Networks, 10/2011-06/2012.

Levent Ertuzun and Ugur Can Ulkumen, Wireless Collision Detection System, 01/2013-06/2013.

Can Ekin Cam and Atilay Tosunor, Improved Quality of Service for a VPN Service, 10/2012-01/2013.

Elif Dilek Salik and Hanife Usta, 60 GHz Wireless Networks, 10/2013-06/2014.

Recep Gul and Kemal Emrehan Sahin, MAC Protocols for Full-Duplex Wireless Networks, 10/2014-01/2015.

Ibrahim Pehlivan, Energy Efficient Transmission Policy for Single Node with RF Energy Harvesting, 09/2015-05/2016.

Mustafa Akin Yilmaz and Berkcan Okur, Algorithms for Partitioning a Mesh Network into Mesh Islands for Optimized Aggregate Throughput, 02/2017-06/2017.

## **PROFESSIONAL SERVICE**

- Senior Editor, IEEE Communication Letters (2018-present)
- Editor, IEEE Transactions on Communications (2017-present)
- Editor, IEEE Transactions on Vehicular Technology (2016-present)
- Editor, IEEE Communications Letters (2015-2018)
- Technical Editor of Low Power Routing (LPR) Group in ZigBee (2007-2009)
  
- Member of WICE Award Selection Committee (2015, 2016)
- Student Competition Representative of Signal Processing and Communication Electronics Technical Committee (2017)
  
- Publications Chair, IEEE International Workshop on Communication, Computing and Networking in Cyber-Physical Systems (CCNCPS), in conjunction with IEEE ICC 2018.
- Co-chair, Disaster Management: An Information and Communications Technology Approach with 5G-and-Beyond Communications and Networks 2017.
- Organizing Committee member, IEEE GLOBECOM WICE Workshop 2016
- TPC Co-chair, IEEE ICDCS Workshop on Communication, Computing and Networking in Cyber Physical Systems (CCNCPS) 2017.
- Co-chair, IPCCC International Workshop on Communication, Computing and Networking in Cyber Physical Systems (CCNCPS) 2016.
  
- Publicity Chair, IEEE ComSoc Women in Communications Engineering (WICE) (2015-present).
- Session Chair, IEEE Vehicular Networking Conference (VNC) 2015, 2016.
- Publicity Chair, International Conference on Body Area Networks (BodyNets) 2007.
- Session Chair, IEEE International Conference on Communications (ICC) 2006.
  
- Member of NetWorld2020 Expert Group (2015-present).
- Member of NSERC Electrical & Computer Engineering Evaluation Group (2017-present).
  
- Member of TUBITAK Focus Group on Technological Roadmap for Embedded Systems in Automotive and Machine Sectors (2014).
  
- Inventram Technology, Advisory Board (2013-present).
  
- Technical program committee member
  - IEEE International Conference on Communications (ICC) 2006, 2010, 2012, 2013, 2014, 2015, 2018.
  - IEEE ICC Workshop - NOMA for 5G 2018.
  - IEEE GLOBECOM International Workshop on Ultra-Low Latency and Ultra-High Reliability in Wireless Communications (ULTRA) 2015, 2016, 2017.



- IEEE GLOBECOM International Workshop on Sub-6 GHz Spectrum for 5G Progress (SenSE5G) 2017.
  - IEEE WCNC Time Critical Cyber Physical Systems (TC-CPS) 2017.
  - European Wireless (EW) 2018.
  - IEEE Wireless Communications and Networking Conference (WCNC) 2008, 2009, 2010.
  - IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC) 2014, 2015, 2016, 2017.
  - IEEE Vehicular Technology Conference (VTC) Spring 2017.
  - Mediterranean Ad Hoc Networking Workshop (Med-Hoc-Net) 2018.
  - International Conference on ITS Communications (ITST) 2011, 2012, 2013, 2015, 2016, 2017, 2018.
  - IEEE Vehicular Networking Conference (VNC) 2013, 2015, 2016, 2017.
  - International Conference on Connected Vehicles and Expo (ICCVE) 2013, 2014, 2015, 2016.
  - IEEE International Symposium on Computer and Communications (ISCC) 2017.
  - International Conference on Recent Advances in Signal Processing, Telecommunications and Computing (SigTelCom) 2018.
  - IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS) 2016.
  - International Conference on Distributed Computing in Sensor Systems (DCOSS) 2012.
  - IEEE International Conference on Smart Computing (SMARTCOMP) 2016, 2017, 2018.
  - IEEE Conference on Vehicular Electronics and Safety (ICVES) 2012.
  - IEEE Global Communications Conference (GLOBECOM) 2007.
  - International Conference on Body Area Networks (BodyNets) 2007.
- Reviewer for:
    - IEEE Transactions on Wireless Communications
    - IEEE Transactions on Vehicular Technology
    - IEEE Transactions on Communications
    - IEEE Transactions on Networking
    - IEEE Transactions on Mobile Computing
    - IEEE Transactions on Broadcasting
    - IEEE Transactions on Parallel and Distributed Systems
    - IEEE Communications Letters
    - IET Intelligent Transportation Systems
    - EURASIP Journal on Wireless Communications and Networking
    - International Journal of Distributed Sensor Networks
    - Wireless Networks
    - Ad Hoc Networks
  - Proposal reviewer for TUBITAK 1001, 1003 - Scientific and Technological Research Council Projects Funding Program (2009-present).

- Proposal reviewer and project progress evaluator for TUBITAK 1511 - Research and Technology Development and Innovation Projects in Priority Areas (2010-present).
- Project progress evaluator for KOSGEB R&D Projects
- Senior Member
  - Institute of Electrical and Electronics Engineers (IEEE)
  - IEEE Communications Society
  - IEEE Control Systems Society
  - IEEE Vehicular Technology Society

## **UNIVERSITY SERVICE**

Koc University Fener-Frontier Editorial Board (2014-present)

Koc University Library Advisory Committee (2014-present)

Engineering Faculty Committee Member (2009-2012)

Koc University Student Advisor for Electrical and Electronics Engineering Department (2010-present)

Oral/Written Qualification Exam Committee Member at Electrical and Electronics Engineering Department (2009-present)

## **INVITED TALKS**

Wireless Network Design for Cyber-Physical Systems, CPS Summer School on Cyber-Physical Systems, Halmstad University, Sweden, June 2018.

Wireless Network Design for Cyber-Physical Systems, IEEE WCNC Time-Critical Cyber-Physical Systems Workshop, April 2018.

Vehicular Wireless Communication in 5G and Beyond, 4th Annual World Automotive Conference, October 2017.

Vehicular Wireless Communication in 5G and Beyond, Disaster Management: An Information and Communications Technology Approach with 5G-and-Beyond Communications and Networks, September 2017.

6G and Beyond for Intelligent Transportation Systems, Medipol University, 6G: Communication Technologies and Applications Workshop, August 2017.

Future Wireless Communication Networks, Gebze Technical University IEEE Week, December 2015.

Vehicular Communication Networks, Internet of Things Workshop, hosted by Ford, November 2015.

Machine-to-Machine Communications: Beyond 5G, NetWorld2020 Joint Expert Group and Vision Group Workshop, June 2015.

Future Wireless Communication Networks, Koc University, May 2014.

Towards Energy Efficient and Robust Cyber-Physical Systems, ICT LEIT in H2020 International Brokerage Event, December 2013.

Optimal Power Control, Rate Adaptation and Scheduling for UWB-based Wireless Networked Control Systems, COST IC0804 Energy Efficiency in Large Scale Distributed Systems, November 2012.

Intra-Vehicular Wireless Sensor Networks, **Keynote talk**, Innovations on Communication Theory (INCT), October 2012.

Intra-Vehicular Wireless Sensor Networks, NSF United States/Middle East Workshop on Trustworthiness in Emerging Distributed Systems and Networks, June 2012.

Intra-Vehicular Wireless Sensor Networks, Middle East Technical University, April 2012.

Intra-Vehicular Wireless Sensor Networks, Istanbul Technical University, March 2012.

Intra-Vehicular Wireless Sensor Networks, University of California Berkeley, July 2011.

Intra-Vehicular Wireless Sensor Networks, Fiat Research Center, November 2010.

Designing Communication Protocol for Wireless Sensor Networks, Koc University, December 2008.

Application-driven Design for Sensor Networks, Carnegie Mellon University, March 2006.

Application-driven Design for Sensor Networks, University of Pennsylvania, March 2006.

Traffic Surveillance with Wireless Magnetic Sensors, University of California Irvine, February 2006.

## **PUBLICATIONS**

### **Patents**

1. Y. Sadi and **S. C. Ergen**, "A Method for Generating a Time Table for Sensors", International Patent PCT/EP2013/067648.

2. **S. C. Ergen**, A. Gueye, and C. Borean, “Method and System for the Deployment of Nodes of a Wireless Communications Network”, International Patent PCT/EP2008/064279.
3. **S. C. Ergen** and X. Sun, “Method and System for Managing Data Transmission from a Plurality of Sensor Devices Included in a Tyre”, International Patent PCT/IT2007/000901.
4. C. Fischione, **S. C. Ergen** and C. Borean, “Method for Setting the Optimal Operation of a Routing Node of an Asynchronous Wireless Communication Network, Network Node and Communication Network Implementing the Method”, International Patent PCT/EP2008/008925.
5. **S. C. Ergen**, C. Borean and R. Giannantonio, “Method for Transmitting Information Packets within an Asynchronous Wireless Communication Network and Network Node Implementing It”, International Patent PCT/EP2007/008157.
6. C. Borean, R. Giannantonio and **S. C. Ergen**, “Method for Managing the Transfer of Information Packets across a Wireless Network and Routing Nodes Implementing It”, International Patent PCT/EP2007/005048.
7. **S. Coleri** and P. Varaiya, “Minimizing Power Consumption in a Wireless System for Sensor Networks using Time Slots for Nodes”, US Patent US7738413 B2.

#### **Journal Papers:**

1. O. Narmanlioglu, B. Turan, **S. C. Ergen** and M. Uysal, “Cooperative MIMO-OFDM Inter-Vehicular Visible Light Communication using Brake Lights”, accepted to Elsevier Computer Communications, Special Issue: Best Papers in IEEE VNC.
2. P. Park, **S. C. Ergen**, C. Fischione, C. Lu and K. H. Johansson, “Wireless Network Design for Control Systems: A Survey”, accepted to IEEE Communications Surveys and Tutorials.
3. A. Akhtar and **S. C. Ergen**, “Directional MAC Protocol for IEEE 802.11ad Wireless Local Area Networks”, Ad Hoc Networks, vol. 69, pp. 49-64, February 2018.
4. **S. C. Ergen** and A. Sangiovanni-Vincentelli, “The Case for Intra-Vehicular Energy Harvesting Wireless Networks”, IEEE Vehicular Technology Magazine, vol. 12, no. 4, pp. 77-85, December 2017.
5. Y. Sadi and **S. C. Ergen**, “Joint Optimization of Wireless Network Energy Consumption and Control System Performance in Wireless Networked Control Systems”, IEEE Transactions on Wireless Communications, vol. 16, no. 4, pp. 2235-2248, April 2017.
6. M. Kontik and **S. C. Ergen**, "Distributed Medium Access Control Protocol for Successive Interference Cancellation based Wireless Ad Hoc Networks", IEEE Communications

Letters, vol. 21, no. 2, pp. 354-357, February 2017.

7. U. Demir and **S. C. Ergen**, "ARIMA based Time Variation Model for Beneath the Chassis UWB Channel", EURASIP Journal on Wireless Communications and Networking, vol. 178, pp. 1-11, August 2016.
8. S. Ucar, **S. C. Ergen** and O. Ozkasap, "Multi-Hop Cluster based IEEE 802.11p and LTE Hybrid Architecture for VANET Safety Message Dissemination", IEEE Transactions on Vehicular Technology, vol. 65, no. 4, pp. 2621-2636, April 2016. (**Listed as 2<sup>nd</sup> most popular paper in IEEE Transactions on Vehicular Technology from June to August 2016**)
9. M. Kontik and **S. C. Ergen**, "Scheduling in Successive Interference Cancellation based Wireless Ad Hoc Networks", IEEE Communications Letters, vol. 9, no. 9, pp. 1524-1527, September 2015.
10. Y. Sadi and **S. C. Ergen**, "Energy and Delay Constrained Maximum Adaptive Schedule for Wireless Networked Control Systems", IEEE Transactions on Wireless Communications, vol. 14, no. 7, pp. 3738-3751, July 2015.
11. N. Akhtar, **S. C. Ergen** and O. Ozkasap, "Vehicle Mobility and Communication Channel Models for Realistic and Efficient VANET Simulation", IEEE Transactions on Vehicular Technology, vol. 64, no. 1, pp. 248-262, January 2015.
12. Y. Sadi and **S. C. Ergen**, "Minimum Length Scheduling with Packet Traffic Demands in Wireless Networks", IEEE Transactions on Wireless Communications, vol. 13, no. 7, pp. 3738-3751, July 2014.
13. U. Demir, C. U. Bas and **S. C. Ergen**, "Engine Compartment UWB Channel Model for Intra-Vehicular Wireless Sensor Networks", IEEE Transactions on Vehicular Technology, vol. 63, no. 6, pp. 2497-2505, July 2014. (**Highlighted in IEEE Spectrum**)
14. M. Kontik and **S. C. Ergen**, "Scheduling in Single-Hop Multiple Access Wireless Networks with Successive Interference Cancellation", IEEE Wireless Communications Letters, vol. 3, no. 2, pp. 197-200, April 2014.
15. Y. Sadi, **S. C. Ergen** and P. Park, "Minimum Energy Data Transmission for Wireless Networked Control Systems", IEEE Transactions on Wireless Communications, vol. 13, no. 4, pp. 2163-2175, April 2014.
16. **S. C. Ergen**, H. S. Tetikol, M. Kontik, R. Sevlian, R. Rajagopal and P. Varaiya, "RSSI Fingerprinting based Mobile Phone Localization with Route Constraints", IEEE Transactions on Vehicular Technology, vol. 63, no. 1, pp. 423-428, January 2014.

17. P. Park, **S. C. Ergen**, C. Fischione and A. Sangiovanni-Vincentelli, "Duty-Cycle Optimization for IEEE 802.15.4 Wireless Sensor Networks", ACM Transactions on Sensor Networks, vol. 10, no. 1, November 2013.
18. C. Fischione, P.G. Park, **S. C. Ergen**, and A. Sangiovanni-Vincentelli, "Analytical Modeling and Optimization of Duty Cycles in Preamble-based Random Access Networks", Wireless Networks Journal (WINET), vol. 19, no.7, pp. 1691-1707, October 2013.
19. C. U. Bas and **S. C. Ergen**, "Ultra-Wideband Channel Model for Intra-Vehicular Wireless Sensor Networks Beneath the Chassis: From Statistical Model to Simulations", IEEE Transactions on Vehicular Technology, vol. 62, no. 1, pp. 14-25, January 2013.
20. Y. Sadi and **S. C. Ergen**, "Optimal Power Control, Rate Adaptation and Scheduling for UWB-Based Intra-Vehicular Wireless Sensor Networks", IEEE Transactions on Vehicular Technology, vol. 62, no. 1, pp. 219-234, January 2013 (**Patented the idea at Koc University**).
21. Y. Sadi and **S. C. Ergen**, "Fast Scheduling for Delay Minimization in UWB Wireless Networks", IEEE Communications Letters, vol. 16, no.9, pp. 1400-1403, September 2012.
22. **S. C. Ergen** and P. Varaiya, "TDMA Scheduling Algorithms for Sensor Networks", Springer Wireless Networks Journal (WINET), vol. 16, no.4, pp. 985-997, May 2010.
23. **S. C. Ergen**, A. Sangiovanni-Vincentelli, X. Sun, R. Tebano, S. Alalusi, G. Audisio and M. Sabatini, "The Tire as an Intelligent Sensor", IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, vol. 28, no.7, pp. 941-955, July 2009. (**Turned into product in Pirelli**)
24. S. Pollin, M. Ergen, **S. C. Ergen**, B. Bougard, L.V. Perre, I. Moerman, A. Bahai, P. Varaiya and F. Catthoor, "Performance Analysis of Slotted Carrier Sense IEEE 802.15.4 Medium Access Layer", IEEE Transactions on Wireless Communication, vol.7, no.9, pp. 3359-3371, September 2008.
25. **S. C. Ergen** and P. Varaiya, "Energy Efficient Routing with Delay Guarantee for Sensor Networks", ACM Wireless Networks Journal (WINET), vol.13, no. 5, pp. 679-690, October 2007.

26. **S. C. Ergen** and P. Varaiya, "PEDAMACS: Power Efficient and Delay Aware Medium Access Protocol in Sensor Networks", IEEE Transactions on Mobile Computing, vol.5, no.7, pp. 920-930, July 2006 (**Patented the idea at UC Berkeley**).
27. S.Y. Cheung, **S. Coleri**, B. Dunder, S. Ganesh, C.W. Tan and P. Varaiya, "Traffic Measurement and Vehicle Classification with a Single Magnetic Sensor", Journal of Transportation Research Record, Feb. 2006, no. 1917 (Selected among the papers in 84<sup>th</sup> Annual Meeting, Transportation Research Board). (**Turned into product in Sensys Networks**)
28. **S. C. Ergen** and P. Varaiya, "On Multi-hop Routing for Energy Efficiency", IEEE Communication Letters, vol.9, no.10, pp.880-881, October 2005.
29. M. Ergen, **S. Coleri** and P. Varaiya, "QoS Aware Adaptive Resource Allocation Techniques for Fair Scheduling in OFDMA based Broadband Wireless Access Systems", IEEE Transactions on Broadcasting, vol.49, no.4, pp.362-370, December 2003 (**Sixth Most Cited Paper in IEEE Transactions on Broadcasting since 2003**).
30. **S. Coleri**, M. Ergen, A. Puri and A. Bahai, "Channel Estimation Techniques based on Pilot Arrangement in OFDM Systems", IEEE Transactions on Broadcasting, vol.48, no.3, pp.223-229, September 2002 (**Most Cited Paper in IEEE Transactions on Broadcasting**).

#### **Selected Conference Papers:**

1. S. Ucar, **S. C. Ergen** and O. Ozkasap, "Data-Driven Abnormal Behavior Detection in Autonomous Platoon", IEEE VNC, December 2017.
2. S. Ucar, **S. C. Ergen** and O. Ozkasap, "Visible Light Communication Assisted Safety Message Dissemination in Multiplatoon", IEEE BlackSeaComm, May 2017.
3. S. Ucar, **S. C. Ergen** and O. Ozkasap, "Security Vulnerabilities of Autonomous Platoons", IEEE SIU, May 2017.
4. S. Ucar, **S. C. Ergen** and O. Ozkasap, "Security Vulnerabilities of IEEE 802.11p and Visible Light Communication based Platoon", IEEE VNC, December 2016.
5. B. Turan, O. Narmanlioglu, **S. C. Ergen** and M. Uysal, "Broadcasting Brake Lights with MIMO-OFDM based Vehicular VLC", IEEE VNC, December 2016.
6. S. Ucar, **S. C. Ergen**, O. Ozkasap and M. Ergen, "Askeri Araçlar Arası Güvenilir Görünür Işık ile İletişim Protokolü", SAVTEK, October 2016.
7. S. Ucar, **S. C. Ergen**, O. Ozkasap, D. Tsonev and H. Burchardt, "SecVLC: Secure Visible Light Communication for Military Vehicular Networks", ACM MobiWAC, November 2016.

8. B. Turan, O. Narmanlioglu, **S. C. Ergen** and M. Uysal, "On the Performance of MIMO OFDM-Based Intra-Vehicular VLC Networks", IEEE VTC, September 2016.
9. B. Turan, O. Narmanlioglu, **S. C. Ergen** and M. Uysal, "Physical Layer Implementation of Standard Compliant Vehicular VLC", IEEE VTC, September 2016.
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