Mustafa Can Gursoy

Curriculum Vitae

CONTACT
INFORMATION

University of Southern California, Ming Hsieh Department
of Electrical and Computer Engineering, Los Angeles, CA

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RESEARCH
INTERESTS

Molecular Communications
Communications Theory

EDUCATION

University of Southern California, Ph.D., Los Angeles, USA
Ph.D. in Electrical Engineering,
Advised by Prof. Urbashi Mitra.

August 2019 - Present
Current CGPA: –/4.0

Bogazici University, Ph.D., Istanbul, Turkey
Ph.D. in Electrical and Electronics Engineering,
Advised by Assoc. Prof. Ali Emre Pusane.

January 2018 - August 2019
CGPA: 4.0/4.0

Bogazici University, M.Sc., Istanbul, Turkey
M.Sc. in Electrical and Electronics Engineering,
Advised by Assoc. Prof. Ali Emre Pusane.
Thesis Topic: *Multiple User and Channel Interference Reduction*
Methods for Molecular Communication via Diffusion Systems

September 2015 - January 2018
CGPA: 3.69/4.0

Bogazici University, B.Sc., Istanbul, Turkey
B.Sc. in Electrical and Electronics Engineering,
Project Topic: *Introducing a Realistic Simulation Tool for Mole-*
cular Communication via Diffusion Systems

2011 - 2015
CGPA: 3.47/4.00

Isikkent Anatolian High School, Izmir, Turkey
High School Diploma, Valedictorian

June 2011
CGPA: 5.00/5.00 (94.56/100)

PUBLICATIONS
AND RESEARCH
EXPERIENCE

Journal Papers

1. **M. C. Gursoy**, E. Basar, A. E. Pusane, and T. Tugcu, "Pulse Position-Based Spatial Modulation for Molecular Communications," *IEEE Communications Letters*, vol. 23, no. 4, pp. 596-599, Apr. 2019.

2. **M. C. Gursoy**, E. Basar, A. E. Pusane, and T. Tugcu, "Index Modulation for Molecular Communication via Diffusion Systems," *IEEE Transactions on Communications*, vol. 67, no. 5, pp. 3337-3350, May 2019.

3. **M. C. Gursoy**, A. E. Pusane, and T. Tugcu, "Molecule-as-a-Frame: A frame based communication approach for nanonetworks," *Elsevier Nano Communications Networks*, vol. 16, pp. 45–59, June 2018.

Conference Papers

1. A. Celik, **M. C. Gursoy**, E. Basar, A. E. Pusane, and T. Tugcu, "A Low-Complexity Solution to Angular Misalignments in Molecular Index Modulation," *in Proc. Personal, Indoor and Mobile Radio Communications (PIMRC)*, Istanbul, Turkey, Sept. 2019.

2. **M. C. Gursoy**, E. Basar, A. E. Pusane, and T. Tugcu, "An ILI Mitigating Modulation Scheme for Molecular MIMO Communications," *in Proc. International Conference on Telecommunications and Signal Processing (TSP)*, Budapest, Hungary, July 2019.

3. **M. C. Gursoy**, H. B. Yilmaz, A. E. Pusane, and T. Tugcu, "Performance Enhancement of Diffusive Molecular Communications with an Apertured Plane," *in Workshop on Molecular Communications*, Linz, Austria, Apr. 2019.

4. **M. C. Gursoy**, B. C. Akdeniz, A. E. Pusane, and T. Tugcu, "Error Probability Calculation with Reduced Complexity for Molecular Communications," *in Proc. International Conference on Telecommunications and Signal Processing (TSP)*, Athens, Greece, July 2018.

5. **M. C. Gursoy**, A. E. Pusane, and T. Tugcu, "Superposition Based Molecular Communications in Nanomachine Swarms," *in Proc. IEEE Signal Processing and Communications Applications Conference*, Izmir, Turkey, May 2018.

6. B. C. Akdeniz, **M. C. Gursoy**, A. E. Pusane, and T. Tugcu, "On the performance of the modulation Methods in time-varying molecular communication channels," *in Proc. International Conference on Telecommunications and Signal Processing (TSP)*, Barcelona, Spain, July 2017.

7. **M. C. Gursoy**, A. E. Pusane, and T. Tugcu, "Throughput optimization for molecule-as-a-frame communications," *in Proc. IEEE Intl. Black Sea Conference on Communications and Networking*, Istanbul, Turkey, June 2017.

8. **M. C. Gursoy**, B. C. Akdeniz, A. E. Pusane, and T. Tugcu, "On the effects of mobile transmitter and receiver on the performance of molecular communications system," *in Proc. IEEE Signal Processing and Communications Applications Conference*, Antalya, Turkey, May 2017.

Other Research Interests

Member of the Bogazici Uni. Nanonetworking Research Group (NRG) since 2014.

MIMO approaches in molecular communications

Code Design for diffusion-based molecular channels

Multi-User Nanonetworks

Journals

IEEE Communications Letters
IEEE Transactions on Communications
IEEE Transactions on Molecular, Biological, and Multi-Scale Communications
IEEE Transactions on Vehicular Technology
IEEE Wireless Communications Letters

Conferences

IEEE ICC
IEEE Globecom
Intl. Conf. on Next Generation Wired/Wireless Advanced Networks and Systems

WORK EXPERIENCE	**Research and Teaching Assistant, Bogazici University,** Department of Electrical and Electronics Engineering. Assisted courses include:	Istanbul, Turkey December 2015 - August 2019

- EE201 Electrical Circuits I — *Spring 2016-2019*
- EE241 Computer Tools for EE (MATLAB programming.) — *Fall 2016*
- EE242 Numerical Methods for EE (C++ programming.) — *Spring 2016-2019*
- EE437 Op Amps and Applications — *Fall 2016*
- EE473 Introduction to Digital Signal Processing — *Fall 2017*
- EE479 Communications Laboratory — *Fall 2017, 2018*
- EE577 Statistical Signal Analysis — *Fall 2018*

Summer Intern, ELDOR Electronics, — Izmir, Turkey
Worked on PLC programmable automation systems. — July 2014 - August 2014

Summer Intern, Schneider Electric, — Manisa, Turkey
Worked on medium voltage cubicle design engineering. — June 2013 - August 2013

ACHIEVEMENTS & HONORS

- Boğaziçi University Honor student. — *2011 - 2015*
- Turkish Educational Foundation (TEV), Outstanding Success Scholarship. — *2011 - 2015*
- University Entrance Exam - Ranked 132nd out of 1.8 million candidates. — *June 2011*
- World 2nd place in the annual worldwide math competition World Maths Day. — *2009*

COMPUTER SKILLS

MATLAB, C, C++, LabView, VHDL, Xilinx ISE, SPICE, LaTeX.

LANGUAGE SKILLS

Turkish *(Native)*
English *(Full Professional Proficiency - TOEFL iBT Score: 112)*

REFERENCES

Assoc. Prof. Ali Emre Pusane, Bogazici Uni. Electrical & Electronics Eng. Department
Contact mail: ali.pusane@boun.edu.tr

Prof. Tuna Tugcu, Bogazici University Computer Eng. Department
Contact mail: tugcu@boun.edu.tr

Assoc. Prof. Ertugrul Basar, Koc University Electrical & Electronics Eng. Department
Contact mail: ebasar@ku.edu.tr