Stanford

Ayfer Ozgur

Professor of Electrical Engineering

Bio

BIO

Ozgur's research focuses on information theory, wireless communication and networks, distributed estimation and learning

ACADEMIC APPOINTMENTS

- Professor, Electrical Engineering

HONORS AND AWARDS

- Communication Theory Technical Committee CTTC Early Achievement Award, IEEE (2018)
- Okawa Foundation Research Award in Information and Telecommunications, Okawa Foundation (2018)
- Career Award, NSF (2013)
- Best PhD Thesis Award, EPFL (2010)

PROFESSIONAL EDUCATION

- Ph.D., Ecole Polytechnique Federale de Lausanne (2009)
- M.S., Middle East Technical University, Turkey , Electrical Engineering (2005)
- B.S., Middle East Technical University, Turkey , Electrical Engineering (2001)
- B.S., Middle East Technical University, Turkey , Physics (2001)

LINKS

- https://web.stanford.edu/~aozgur/: https://web.stanford.edu/~aozgur/

Teaching

COURSES

2025-26

- Information Science and Engineering: ENGR 76 (Win, Spr)

2024-25

- Information Science and Engineering: ENGR 76 (Spr)
- Probability and Statistical Inference: EE 278 (Aut)

2023-24

- Information Science and Engineering: ENGR 76 (Spr)

- Probability and Statistical Inference: EE 278 (Aut)

2022-23

- Information Science and Engineering: ENGR 76 (Spr)
- Introduction to Statistical Signal Processing: EE 278 (Aut)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Siddharth Chandak, Alisa Hathaway, Michelle Hedlund, Sabrina Liu, Aayush Rajesh, Ajay Tripathi, Yuxin Wu, Emi Zeger

Doctoral Dissertation Advisor (AC)

Andy Dong, Jiwon Jeong, Dan Song

Master's Program Advisor

Mengze Gao, Kyle Huang, Siddhartha Parupudi, Ishan Seendripu, Jeng-Chi Weng, Eric YE, Benjia Zhang

Doctoral (Program)

Kirill Acharya, Siddharth Chandak, Jiwon Jeong, Muhammad Ahmad Kaleem, Ching-Fang Li, Aayush Rajesh, Dan Song

Publications

PUBLICATIONS

- **Spatial Degrees of Freedom of Large Distributed MIMO Systems and Wireless Ad Hoc Networks** *IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATIONS*
  Oezguer, A., Leveque, O., Tse, D.
  2013; 31 (2): 202-214
- **A Scaling Law Approach to Wireless Relay Networks**
  Ozgur, A.
  2013
- **Achieving the Capacity of the N-Relay Gaussian Diamond Network Within log N Bits**
  Chern, B., Ozgur, A.
  2012
- **Simple schedules for half-duplex networks**
  Brahma, S., Ozgur, A., Fragouli, C.
  2012
- **Dynamic QMF for Half-Duplex Relay Networks**
  Ozgur, A., Diggavi, S.
  2012
- **Hierarchical Beamforming for Large One-Dimensional Wireless Networks**
  Merzakreeva, A., Ozgur, A., Leveque, O.
  2011
- **Network simplification: the Gaussian diamond network with multiple antennas**
  Nazaroglu, C., Ozgur, A., Ebrahimi, J., Fragouli, C.
  2011
- **Wireless Network Simplification: the Gaussian N-Relay Diamond Network**
  Nazaroglu, C., Ozgur, A., Fragouli, C.
  2011

- **Graph-based codes for quantize-map-and-forward relaying**
  Sengupta, A., Brahma, S., Ozgur, A., Fragouli, C., Diggavi, S.
  2011
- **Throughput-Delay Tradeoff for Hierarchical Cooperation in Ad Hoc Wireless Networks.** *IEEE Transactions on Information Theory*
  Ozgur, A., Leveque, O.
  2010; 3 (56): 1369-1377
- **Linear Capacity Scaling in Wireless Networks: Beyond Physical Limits?**
  Ozgur, A., Leveque, O., Tse, D.
  2010
- **Approximately Achieving Gaussian Relay Network Capacity with Lattice Codes**
  Ozgur, A., Diggavi, S.
  2010
- **Beyond Multi-hop: Optimal Cooperation in Large Wireless Networks**
  Ozgur, A., Leveque, O., Tse, D.
  2010
- **Information Theoretic Operating Regimes of Large Wireless Networks.** *IEEE Transactions on Information Theory*
  Ozgur, A., Johari, R., Tse, D., Leveque, O.
  2010; 1 (56): 427-437
- **Achieving Linear Scaling with Interference Alignment**
  Ozgur, A., Tse, D.
  2009
- **Information Theoretic Operating Regimes of Large Wireless Networks**
  Ozgur, A., Johari, R., Tse, D., Leveque, O.
  2008
- **Throughput-Delay Tradeoff for Hierarchical Cooperation in Ad Hoc Wireless Networks**
  Ozgur, A., Leveque, O.
  2008
- **Hierarchical Cooperation Achieves Optimal Capacity Scaling in Ad Hoc Networks.** *IEEE Transactions on Information Theory*
  Ozgur, A., Leveque, O., Tse, D.
  2007; 10 (53): 3549-3572
- **Hierarchical Cooperation Achieves Linear Capacity Scaling in Ad Hoc Networks**
  Ozgur, A., Leveque, O., Tse, D.
  2007
- **Exact Capacity Scaling of Extended Wireless Networks**
  Ozgur, A., Leveque, O., Tse, D.
  2007
- **Scaling Laws for One and Two-Dimensional Random Wireless Networks in the Low Attenuation Regime.** *IEEE Transactions on Information Theory*
  Ozgur, A., Leveque, O., Preissmann, E.
  2007; 10 (53): 3573-3586
- **How does the Information Capacity of Ad Hoc Networks Scale?**
  Ozgur, A., Leveque, O., Tse, D.
  2006
- **Scaling Laws for Two-Dimensional Random Ad-Hoc Wireless Networks**
  Ozgur, A., Leveque, O.
  2006

- **Operating Regimes of Wireless Networks** *Foundations and Trends in Networking*
  Ozgur, A., Leveque, O., Tse, D.
  ; 5 (1): 1-107