Metehan Cekic **PhD student**

CONTACT INFORMATION

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EDUCATION

University of California Santa Barbara, Santa Barbara, US **2017 - Present**
Ph.D. and M.S., *Electrical and Computer Engineering*

- Supervisor: Prof. Upamanyu Madhow
- Area: Machine Learning, Deep Learning and Signal Processing
- GPA: 4.0/4.0

Bogazici University, Istanbul, Turkey **2012 - 2017**
B.S., *Electrical & Electronics Engineering*, **B.S.** *Physics*

- CGPA: 3.7/4.0, Dean's High Honors List

University of California Los Angeles, Los Angeles, US **2015 - 2016**
B.S. Study Abroad, *Electrical and Computer Engineering*

- GPA: 3.9/4.0

RESEARCH AND PROJECTS

Advisor: Prof. Upamanyu Madhow, UC Santa Barbara

- **Radio Frequency (RF) Machine Learning (ML)** **2018 - present**
  - Showed that complex-valued CNNs can learn RF signatures to distinguish between devices sending exactly the same message. Demonstrated effectiveness for two different wireless protocols: WiFi and ADS-B.
  - Studied robustness to spoofing, and to channel variations, noise and frequency drift occuring in data collected over different days/locations.
- **Adversarial Machine Learning** **2018 - present**
  - Working on a robust neural network against well-known adversarial perturbations (PGD, Iterative FGSM) by imposing sparsity in weights and activations.
- **Reinforcement Learning for Turkish Card Game Called "Batak"** **2019**
  - Programmed the game and the environment from scratch, and developed a competitive AI by utilizing LSTM and fully connected neural networks specifically designed for the game.
  - Compared different architectures and got a performance close to human-level.

COMPUTER SKILLS

Languages: Python, MATLAB, C/C++, Bash.
Libraries: Tensorflow, Pytorch, Scikit-learn, Numpy.

RELEVANT COURSEWORK

- Machine Learning: A Signal Processing Perspective
- Deep Learning for NLP
- Theoretical Machine Learning
- Pattern Recognition
- Advanced Topics in Computer Vision
- Information Theory
- Matrix Analysis and Computation
- Game Theory
- Convex Optimization

PUBLICATIONS

S. Gopalakrishnan*, **M. Cekic***, U. Madhow, "Robust Wireless Fingerprinting via Complex-Valued Neural Networks", *IEEE Global Communications Conference (Globecom)*, Waikoloa, Hawaii, Dec. 2019.

S. Gopalakrishnan, Z. Marzi, **M. Cekic**, U. Madhow, R. Pedarsani, Robust Adversarial Learning via Sparsifying Front Ends, under review at *IEEE Transactions on Signal Processing*.

C. Bakiskan, S. Gopalakrishnan, **M. Cekic**, U. Madhow, R. Pedarsani, "Polarizing Front Ends For Robust CNNs", submitted to *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Barcelona, Spain, May 2020.

* Joint first authors.

Industrial Internships

Speech Enabled Software Technologies (SESTEK), Istanbul **Summer 2015**

- *Speech Processing Engineer*: Worked on how to detect edited tapes and speech processing techniques used in forensic incidents.

Teaching

Teaching Assistant experience in UCSB: Assisted lead professors with tasks related to administering college level courses and led problem solving class discussions.

- *Graduate level courses*: ECE 283: Machine Learning from Signal Processing Perspective.
- *Undergraduate level courses*: ECE 130B: Signal Analysis, ECE 139: Probability Theory

Honors and Awards

UCSB, Outstanding Electrical and Computer Engineering Teaching Assistant Award, 2018

UCSB, Electrical and Computer Engineering Ph.D Scholarship, 2017

Turkish Education Association, Outstanding Success Scholarship, 2012

Ranked 87^{th} out of 2 million students in Turkish University Entrance Exam, 2012

Akdeniz University, Mathematics olympiads, Honorable Mention, 2010

TUBITAK, 13^{rd} National Mathematics Olympiads, Silver Medal, 2008