

Ozan Aygun

Curriculum vitae

Brooklyn, NY
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Research Scientist & Machine Learning Engineer with 4+ years building ML, time-series forecasting, RL, and signal-processing models. Delivered 3GPP RAN2 contributions (AI/ML mobility input, AI/ML positioning study). Skilled in Python, PyTorch, RL, and federated learning; 5+ ML publications at IEEE conferences.

Education

- 09/01/2022 - present - **Ph.D.**, Electrical and Computer Engineering, *NYU Tandon School of Engineering*
- **Advisor:** Prof. Elza Erkip
 - **Research Focus:** Machine learning, wireless communications, network control
 - **Notable Coursework:** Network Design & Algorithms, Optimization and Computational Linear Algebra
- 08/22/2020 - **M.S.**, Electrical and Electronics Engineering, *Bilkent University*
- 08/15/2022 - **Advisor:** Prof. Tolga M. Duman
- **Thesis Title:** On Federated Learning Over Wireless Channels with Over-the-Air Aggregation
 - **Notable Coursework:** Wireless Communications, Information Theory, Advanced Signal Processing, Statistical Learning and Data Analytics, Deep Learning
- 08/20/2015 - **B.S.**, Electrical and Electronics Engineering, *Bilkent University*
- 06/15/2020 - **Senior Design Project:** Designed a deep reinforcement learning based atomic force microscope scanning system as a team with NanoMagnetics Instrument.

Experience

- 05/19/2025 - **Software Intern**, Apple Inc., Cupertino, CA
- 08/22/2025 - Developed measurement gap reduction for AI/ML-based mobility prediction, improved throughput gain by 15% through efficient mobility observations.
- Collaborated with 6G and product teams, authored manuscript [P1].
- 05/06/2024 - **Software Intern**, Apple Inc., San Diego, CA
- 09/27/2024 - Built time-series forecasting pipelines (XGBoost, Transformers, FC) for AI/ML-based mobility prediction on PyTorch, performed data pre-processing for large wireless datasets using pandas and NumPy.
- Predicted high velocity radio resource measurements within 1dB, results shared as Apple's AI/ML mobility contribution at the 3GPP RAN2 August 2024 meeting to other companies.
- 05/30/2023 - **Communication Systems Research Intern**, SHARP Labs of America, Vancouver, WA
- 08/17/2023 - Designed 3GPP-compliant AI/ML-based positioning algorithm on PyTorch; integrated with NYUSIM channel simulator; achieved 0.2m MSE positioning error using power delay profile measurements.
- 06/01/2019 - **Engineering Intern**, Meteksan, Ankara, Turkey
- 07/01/2019
- o Worked on NATO's tactical data link system, Link16, and its message protocols of the data link terminal.
 - o Developed and analyzed a relative navigation function for company's tactical data link system.
- 06/01/2018 - **Engineering Intern**, Aselsan, Ankara, Turkey
- 07/01/2018
- o Learned about the production and test of thermal surveillance systems.
 - o Developed a new production monitoring system software used by whole production section.

Publications

Journal

- [J1] **O. Aygün**, M. Kazemi, D. Gündüz, T.M. Duman, "Over-the-air federated edge learning with hierarchical clustering," *IEEE Transactions on Wireless Communications*, 2024. [pdf](#)

Conference

- [C1] **O. Aygün**, M. Kazemi, D. Gündüz, T.M. Duman, "Hierarchical over-the-air federated edge learning," in *IEEE Intl. Conf. on Comms. (ICC) 2022*, Seoul, South Korea, May 2022. [pdf](#)

- [C2] **O. Aygün**, M. Kazemi, D. Gündüz, T.M. Duman, "Over-the-air federated learning with energy harvesting devices," in *IEEE GLOBECOM 2022*, Rio de Janeiro, Brazil, Dec. 2022. [pdf](#)
- [C3] **O. Aygün**, V. N. Vitale, A. Tulino, H. Feng, E. Erkip, J. Llorca, "A Constrained RL Approach for Cost-Efficient Delivery of Latency-Sensitive Applications," *Accepted to 2025 59th Asilomar Conference on Signals, Systems, and Computers*.
- [C4] **O. Aygün**, E. Ozyilkan, E. Erkip, "Neural Compress-and-Forward for the Primitive Diamond Relay Channel," *Accepted to 2025 59th Asilomar Conference on Signals, Systems, and Computers*. [pdf](#)
- [C5] **O. Aygün**, O. Orhan, O. Sahin, N. Goris, A. Naguib, "Reference Signal Received Power Prediction for Measurement Gap Reduction," *IEEE Wireless Communications and Networking Conference (WCNC) 2026*.

Skills

Languages

Python, MATLAB, C++, C#, SQL, L^AT_EX

ML/DL

RL (policy/value/multi-agent methods), CNN/RNN, LSTM, XGBoost, Time-Series Forecasting, Supervised/Unsupervised Learning

Tools

PyTorch, TensorFlow, scikit-learn, NumPy, Pandas

Honours and Awards

- 2023 **NYU Ernst Weber Fellowship**, NYU Tandon School of Engineering
- 2022 **NYU SoE Fellowship**, NYU Tandon School of Engineering
- 2020–2022 **5G and Beyond Joint Graduate Support Programme**, Turkcell and Turkey Information and Communication Technologies Authority
- 2015–2020 **Undergraduate High Honour Student**, Bilkent University
- 2017 **Comprehensive Undergraduate Scholarship**, Bilkent University

Service

Reviewer for IEEE TWC, IEEE JSAC, IEEE OJCOMS, IEEE TGCN, IEEE TNSE

Teaching Experience

- 2023-2024 **Course Assistant**, *ECE-GY 6063 - Information Theory*, *ECE-UY 2233 - Introduction to Probability*, *ECE-UY 3054 - Signals and Systems*, NYU
- 2022 **Teaching Assistant**, *EEE485/585 - Statistical Learning and Data Analytics*, Bilkent University
- 2020–2022 **Teaching Assistant**, *EEE212 - Microprocessors*, Bilkent University