Eray Eren

Ph.D. Candidate, Electrical & Computer Engineering, UCLA

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Experience

Speech Processing Laboratory, UCLA, Graduate Research Fellow — Los Angeles, CA, USA
Supported by the Amazon Graduate Fellowship (2024 Amazon Fellow) and the Flawless AI Research Grant (06/2023–12/2025) for Ph.D. research and academic collaboration. — Sept 2022 – present, 4 years

- Currently working on improving expressivity and prosody cloning capabilities of zero-shot text-to-speech (TTS) systems. Another current work explores effectively using synthetic TTS data for speech recognition.
- Developed standalone zero-shot speech prosody models utilizing a Perceiver-IO architecture to map text and reference audio to latent prosodic features (pitch, duration, and energy).
- Achieved state-of-the-art prosody-prediction accuracy, improving the naturalness and cadence of downstream TTS systems.
- Proposed a lightweight (48M-parameter) zero-shot style-transfer TTS system featuring fine-grained style disentanglement; achieved a 3.64 prosody pMOS score, significantly outperforming competitive baselines.
- Implemented a hybrid DSP & DNN F0 estimation architecture that fuses noise-robust summary correlograms with waveform representations for robust pitch extraction.
- Contributed to neural audio codec research focused on acoustic/semantic performance; explored model-merging strategies using task vectors.

Flawless AI Inc., Research Scientist Intern & Academic Collaborator — CA, USA
Conducted style-preserving neural speech editing research during three consecutive summer internships (2023–2025) and academic collaboration. This work supported the development of the zero-shot prosody and style-transfer models described above. — June 2023 – Dec 2025, 2 years 7 months

Speech Processing Laboratory, Ozyegin University, Graduate Research Fellow — Istanbul, Turkey

- Devised few-shot speaker-adaptive neural postfilters (e.g., Transformers, GANs) for text-to-speech synthesis. — Sept 2019 – June 2022, 2 years 10 months
- Studied data- and parameter-efficient synthesis systems.
- Designed Bayesian neural networks for uncertainty assessment in speaker verification under spoofing attacks.

Ozyegin University, Graduate Teaching Assistant — Istanbul, Turkey

- Assisted with grading and course-material preparation, including theoretical homework assignments and Python-based applications for Machine Learning, Speech Processing, and DSP courses. — 2019 – 2021, 2 years

UCLA, Graduate Teaching Assistant — Los Angeles, CA, USA

- Assisted with grading for the Digital Signal Processing (DSP) course. — 2023 – 2023, 1 year
- Prepared and led two hours of discussion sections weekly.

Neoses Speech Technologies, R&D Engineer — Istanbul, Turkey

- Successfully modeled (including data collection and cleaning) a fast SPSS-based Turkish text-to-speech system using deep learning, funded by The Scientific and Technological Research Council of Turkey (TÜBİTAK). — 2018 – 2019, 1 year

BEKO, Embedded Software Unit, Central Research, R&D Engineer — Istanbul, Turkey

- Programmed microcontrollers in home appliances using C. — 2016 – 2018, 2 years
- Participated in the development of BEKO's own OS for its embedded products.

ASELSAN, Radar/Electronics Unit, Research Intern — Ankara, Turkey
- Surveyed several compressive-sampling algorithms for reconstructing sparse signals; implemented and evaluated them in MATLAB with a GUI. — June 2014 – Sept 2014, 4 months

NETAS, Software Unit, Research and Development, Research Intern — Istanbul, Turkey
- Worked on the Voice over IP security project. Surveyed possible attacks and tested them. — June 2014 – Sept 2014, 4 months

Koc University, Manufacturing Automation and Research Laboratory, Research Intern — Istanbul, Turkey
- Collaborated with Prof. Ismail Lazoglu. Studied the electronic circuit design of the "High-Performance Linear Compressor System", funded by BEKO. — June 2013 – Sept 2013, 4 months

BEKO, Embedded Software Unit, Central Research, Research Intern — Istanbul, Turkey
- Built and validated a Unix shell-based networking solution enabling internet connectivity of home appliances at the embedded software unit. — June 2013 – Sept 2013, 4 months

Education

Ph.D. Candidate — **University of California, Los Angeles (UCLA)**, Electrical & Computer Engineering — Los Angeles, CA, USA — 2022 – 2026 (expected Dec. 2026)
- Advisor: Abeer Alwan (PI, Speech Processing Laboratory, UCLA)

M.S. — **Ozyegin University**, Computer Science — Istanbul, Turkey — 2019 – 2021
- Thesis: Deep Learning-Based Speaker-Adaptive Postfiltering with Limited Adaptation Data for Embedded Text-to-Speech Synthesis Systems
- Advisor: Cenk Demiroglu (PI, Speech Processing Laboratory, Ozyegin University)
- Graduated with a GPA of 4.0/4.0

B.S. — **Bogazici University**, Electronics Engineering — Istanbul, Turkey — 2011 – 2015

Awards

Flawless AI PhD Research Grant for Academic Collaboration — 2023–2025
Flawless AI Inc. Funded PhD research on Generative AI Speech Modeling.

Amazon Graduate Fellowship — 2024
UCLA and Amazon, Electrical & Computer Engineering. 2024 Amazon Fellow.

First-Year Graduate Fellowship — 2022
UCLA, Electrical & Computer Engineering.

Graduated with a GPA of 4.0/4.0 — 2021
Ozyegin University, Computer Science.

Distinguished Innovator Award — 2018
Arcelik Group.

Full Scholarship for Bachelor of Science — 2011–2015
Vehbi Koc Foundation. Ranked in the top 0.04% nationwide on Turkey's university entrance exam (355th among 1,000,000+ candidates).

Selected Publications

Improving Zero-Shot Style Transfer Text-to-Speech by Disentangled Fine-Grained Style Modeling — 2026
Eray Eren, Q. Liu, A. Alwan, G. Bharaj
JASA Express Letters, 6(3), 034802

Compositional Domain Adaptation for Automatic Speech Recognition with Head-wise Selective Attention Merging 2027
2 citations (Google Scholar).
N. B. Shankar, Z. Wang, **Eray Eren**, A. Alwan
Computer Speech & Language, 101, 102012

STACodec: Semantic Token Assignment for Balancing Acoustic Fidelity and Semantic Information in Audio Codecs 2026
Conference paper, accepted.
K. Zhang, M. Shi, **Eray Eren**, N. B. Shankar, Z. Wang, A. Alwan
ICASSP

Entropy-Aware Domain-Routed Mixture-of-Experts Speech-LLM Framework: A Case Study of Multi-Domain Child-Adult ASR 2026
M. Shi, K. Zhang, Z. Wang, N. B. Shankar, **Eray Eren**, A. Alwan
INTERSPEECH

ProMode: A Speech Prosody Model Conditioned on Acoustic and Textual Inputs 2025
1 citation (Google Scholar).
Eray Eren, Q. Liu, H. Kim, P. Garrido, A. Alwan
INTERSPEECH

Selective Attention Merging for Low Resource Tasks: A Case Study of Child ASR 2025
9 citations (Google Scholar).
N. B. Shankar, Z. Wang, **Eray Eren**, A. Alwan
ICASSP

Deep Learning-Based Speaker-Adaptive Postfiltering with Limited Adaptation Data for Embedded Text-to-Speech Synthesis Systems 2023
6 citations (Google Scholar).
Eray Eren, C. Demiroglu
Computer Speech & Language, 81, 101520

FusedF0: Improving DNN-Based F0 Estimation by Fusion of Summary-Correlograms and Raw Waveform Representations of Speech Signals 2023
Oral presentation. 3 citations (Google Scholar).
Eray Eren, L. N. Tan, A. Alwan
Proc. INTERSPEECH, pp. 4523–4527

Uncertainty Assessment for Detection of Spoofing Attacks to Speaker Verification Systems Using a Bayesian Approach 2022
11 citations (Google Scholar).
C. Suslu, **Eray Eren**, C. Demiroglu
Speech Communication, 137, 44–51

Graduate Coursework

Machine Learning & Deep Learning: Advanced Deep Learning, Machine Learning with Python, Machine Learning in Finance

Speech & Signal Processing: Advanced Digital Speech Processing

Data & Analytics: Large Scale Data Mining, Predictive Analytics, Mathematical & Statistical Foundations of Analytics

Mathematics: Matrix Analysis

Technical Skills

Research Areas: Speech Processing, Speaker & Style-Adaptive Expressive Text-to-Speech, Generative AR Language Models, Diffusion / Flow Matching, Transformers, Uncertainty in Deep Learning, Adversarial Networks, Neural Vocoders, Spoofing Detection for Automatic Speaker Verification Systems

Programming & Tools: Python, PyTorch, C, MATLAB, Linux

Languages

Turkish
Native speaker

English
Fluent