ALPEREN DURU

+1 737 900 74 37 ⋄ aduru@utexas.edu
The University of Texas at Austin ⋄ Texas
www.linkedin.com/in/alperen-duru-30a49816b/

EDUCATION

University of Texas at Austin, Ph.D. Student *Aug 2022 - Ongoing*
Supervised by Prof. Jeffrey Andrews and Prof. Todd Humphreys
Current Project: 6G Radio Design for XR
Current CGPA: 4/4

Bilkent University, Engineering Faculty *Sep 2017 - June 2022*
B.S. in Electrical and Electronics Engineering
Overall GPA: 3.99/4

High School of Science *2013 - 2017*
Özel Çukurova Bilfen Fen Lisesi
Overall GPA: 97/100

SKILLS

Computer Languages	MATLAB, Python, Embedded C, LabVIEW, Assembly, Java, Spice
Software & Tools	LTSpice, Proteus, MS Office, LTSpice, Simulink
Languages	Turkish: Native English: Proficient, C2 level German: Elementary, A1 level

EXPERIENCE

Ericsson Research Internship
Summer Research Intern *Jun 2024 - Aug 2024, Santa Clara, California*

· The resource allocation problem for outdoor extended reality systems, aimed at balancing quality of experience metrics with energy efficiency, was addressed using a reinforcement learning approach.

Ericsson Research Internship
Summer Research Intern *May 2023 - Aug 2023, Santa Clara, California*

· Adaptive beamforming techniques were analyzed for a conceptual extended reality headset design with 6 degrees of freedom and 2 dimensional antenna array. A novel beamwidth adaptation technique leveraging the sensor estimations is proposed to improve the outage probability and coverage distance.

Theoretical Analysis of Indoor Localization with Reconfigurable Intelligent Surfaces
Research spv. by Prof. Sinan Gezici *Feb 2021 - Jun 2021, Ankara, Turkey*

· Cramér-Rao lower bounds for maximum likelihood estimators using RIS on indoor wireless localization were studied using time-of-arrival and hybrid with received signal strength methods.

Aselsan A.S.
Summer Intern *Jun 2021 - Jul 2021, Ankara, Turkey*

· End-to-end OFDM system was simualted using AWGN, Rayleigh, Rician, and TDL unknown channels, with MMSE channel estimations and Doppler effects. Bit error rate with changing SNR was analyzed.

Turkish Aerospace Industries
Summer Intern *Jul 2020 - Sep 2020, Ankara, Turkey*

· Using a Software-defined Radio, V-dipole and cross-dipole antennas were built to receive NOAA 15, 18, and 19 satellite signals, capturing Earth images and thermal maps from 800 km, with an analysis of the satellites' APT communication structure.

Meteksan Defence
Summer Intern *Jun 2020 - Jul 2020, Ankara, Turkey*

· A serial communication protocol for connecting a high data rate source to a slower process was coded in VHDL for the ZCU 111 RFSoC board, discussing meta-stability and FIFO queueing systems.

Acoustic and Underwater Technologies Research Center
Research Intern *Jun 2019 - Jul 2019, Ankara, Turkey*

· Prototype altimeter sensors were tested using instruments controlled by LabVIEW and MATLAB. Butterworth filters and impedance matching were used to reduce noise and amplify weak sensor signals.

PAPERS

Resource Allocation for XR with Edge Offloading: A Reinforcement Learning Approach
2025 MILCOM Conference *Jun 2024 - Sep 2024*

· Uplink/downlink resource allocation for future XR applications with edge offloading by a reinforcement learning setup was constructed. The effects of the XR computing capabilities and network parameters on the edge offloading and energy efficiency were numerically analyzed.

Pose-aware 3D Beamwidth Adaptation for Mobile Extended Reality
2024 ICC Conference *May 2023 - Oct 2023*

· A novel sensor-aided beamwidth adaptation technique for 2D antenna terminals with 6 degrees of freedom was proposed, enhancing outage probability and coverage distance using localization outdoors.

Relative Localization for Swarm Aerial Vehicles
2022 SIU Conference *Nov 2021 - Feb 2022*

· Using ultra-wideband (UWB) modules, two techniques of anchored and phase difference of arrival localization methods and performances were analyzed and tested for high variance estimations.

PATENTS

AI-Based Scheduling for 6G XR with Partial Offloading Jun 2024 - Oct 2025
Patent Pending
Pending patent based on the recent research on resource allocation for XR with edge offloading.

PROJECTS

Dense Flight Formation with UWB Signals Sep 2021 - May 2022
Industrial Project, Havelsan Defense Industries Bilkent University
UWB signals were be used to localize the quadrotor swarm members relative to each other and fly the drones in 2 meters apart while preserving their flight formation.

Sensor Safety and Anti-Theft System Nov 2019 - Jan 2020
Microprocessors Project
A system based on FRDMKL25Z microcontroller controlled by SMS, which protects another system from being stolen and harsh environmental conditions such as temperature, humidity, and rain.