

# Furkan Bagci

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## Education

**Bilkent University, Ankara, Turkey**  
*M.Sc. in Electrical and Electronics Engineering*

*August 2022 – Present*

**Bilkent University, Ankara, Turkey**  
*B.Sc. in Electrical and Electronics Engineering*

*September 2017 – June 2022*

## Research Interests

Wireless Communications, Federated Learning, Machine Learning, Machine Learning for Communications

## Research Experience

**Graduate Researcher**  
*CTAR Lab, Bilkent University*

*August 2022 – Present*

- Working under the supervision of [Prof. Tolga Mete Duman](#).
- Working on over-the-air federated learning over wireless channels.
  - **Current focus:** Developing diverse client scheduling strategies for over-the-air federated learning with energy-harvesting devices under blind transmitters and wireless fading MAC while analyzing the effects of update estimation and user clustering.

## Relevant Courses

Bilkent University – *M.Sc.* Wireless Communications, Random Processes, Information Theory, Advanced Signal Processing, Detection and Estimation Theory

Bilkent University – *B.Sc.* Telecommunications I, Telecommunications II, Coding Theory, Digital Signal Processing, Neural Networks, Introduction to Machine Learning, Statistical Learning and Data Analytics

## Publications

**F. Bagci**, B. Tegin, M. Kazemi, and T. M. Duman (2025). *Update Estimation and Scheduling for Over-the-Air Federated Learning with Energy Harvesting Devices*. Preprint (Submitted to IEEE ICC Workshops).

A. Aytakin, **F. Bağcı**, M. Bozdağ, N. Camuzcu, A. Duru, M. S. Elma, A. Maghsoudi, B. Barshan, S. Köse, and Ç. Akman, (2022). *Relative Localization for Swarm Aerial Vehicles*. In Proceedings of the 2022 30th Signal Processing and Communications Applications Conference (SIU).

## Experience

**Teaching Assistant**  
*Bilkent University, Ankara, Turkey*

*August 2022 – Present*

- Coordinator Teaching Assistant for EEE 493/494 Industrial Design Project

**R&D Assistant Specialist**  
*Turk Telekom Inc., Ankara, Turkey*

*August 2022 – Present*

- Working on machine learning for next-generation wireless systems.

**Artificial Intelligence Intern**  
*Baykar Technology, Istanbul, Turkey*

*June 2021 – August 2021*

- Worked on monocular visual odometry for vehicles and UAVs. Implemented feature detection, feature description, and optical flow algorithms for motion estimation.

## Undergraduate Teaching Assistant

January 2021 – June 2021

Bilkent University, Ankara, Turkey

- Student Teaching Assistant for EEE212 Microprocessors

## Digital and Embedded Systems Intern

July 2020 – August 2020

ASELSAN, Ankara, Turkey

- Worked on test systems and embedded systems. Implemented serial communication channel between FPGA board and the computer using AXI4-Lite, UART, I2C and RS232-RS422.

## Digital Design Intern

June 2019 – July 2019

STM, Ankara, Turkey

- Worked on the improvement of some major UAVs. Implemented AXI4-Lite 3 Phase PWM Generator on Xilinx Zynq-7000 FPGA board

## Achievements & Scholarships

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### Achievements

- **Best Oral Presentation Award**, Bilkent University EEE Graduate Research Conference, 2025.
- Ranked in the top 0.4% among over 2 million students in the National University Entrance Exam, 2017.

### Scholarships

- 5G and Beyond Joint Graduate Support Programme Scholarship, Turk Telekom Inc., November 2022 – Present.

## Technical Skills

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|                              |                                |
|------------------------------|--------------------------------|
| <i>Programming Languages</i> | Python, MATLAB, Assembly, VHDL |
| <i>Frameworks</i>            | PyTorch, Numpy, OpenCV         |

## Languages

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|----------------|-------------------|
| <i>English</i> | TOEFL: 106        |
| <i>Turkish</i> | Native            |
| <i>German</i>  | Basic Proficiency |

## Extra-curricular Activities

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### Swimmer

- Gained 40+ medals in national and regional tournaments as leading many teams as a captain and valuable team member.