

1 MSc (12 Months) and 1 PhD (12 Months) scholarships are available for METU graduate students to work on an exciting research project at the intersection of **Deep Learning, Waveform Design, and Integrated Sensing and Communications** — key enablers for **6G and beyond wireless communication networks**.

Application Deadline: 30th of March – Candidates are encouraged to apply as soon as possible.

Start Date: As soon as possible - Applications will be reviewed **on a rolling basis** until all positions are filled.

This project is supported by METU BAP (Scientific Research Projects Coordination Unit). Current scholarship rates are 6000 TL/Month for MSc students and 9000 TL/Month for PhD Students.

The project will focus on developing novel techniques that leverage **deep learning for wireless communication and sensing systems**, optimise the coexistence of **communication and sensing functionalities**, and enhance overall **spectral and energy efficiency** in future wireless systems.

Key Research Areas

- Deep learning for waveform design and optimization
- Deep learning for signal processing
- Joint radar sensing and communication systems
- Modelling and simulation of wireless systems
- Deriving analytical expressions for communication capacity and sensing lower bounds
- Mathematical optimization and developing closed-form solutions

Who Should Apply?

We are looking for talented and motivated researchers with a passion for **applied mathematics, next-generation wireless communications, machine learning, and signal processing**. Candidates with **experience** or **strong interest** in at least one of the following areas are encouraged to apply:

- Wireless communication and sensing systems (OFDM, FMCW, massive MIMO, ISAC, communication/computer networks.)
- Machine learning techniques (deep learning, reinforcement learning, federated learning, etc.)
- Proficiency in MATLAB and/or Python (Simulation and modeling experience is desirable).
- Strong mathematical background (linear algebra, optimization, probability, matrix theory).

- Experience with mathematical optimization, cybersecurity.

Eligibility Criteria

• **MSc applicants:** METU MSc with thesis students in the following fields: Electrical and Electronics Engineering, Mathematics, Physics, Computer Science, Computer Engineering, Computer Education, Information Technologies, Scientific Computing or related fields.

• **PhD applicants:** METU PhD students in the following fields: Electrical and Electronics Engineering, Mathematics, Physics, Computer Science, Computer Engineering, Computer Education, Information Technologies, Scientific Computing or related fields.

What You Will Do

- Develop machine learning-based algorithms for wireless communication systems.
- Derive mathematical expressions for optimisation and performance analysis.
- Develop wireless communication and sensing system models and simulations.
- Write research articles for high-impact journals and leading international conferences.
- Collaborate with researchers from top international universities and industry partners.
- Contribute to writing research projects and collaborate with other researchers and students.

How to Apply

Interested candidates should send the following documents to Assist. Prof. Dr. Murat Temiz mtemiz@metu.edu.tr with the subject line:

“Application for MSc/PhD Position – Deep Learning and Wireless”:

- Detailed **CV** including education background (with grades) and research experience.
- A one-page **cover letter** explaining research interests, motivation, and relevant skills.
- For informal inquiries, you can contact Dr. Murat Temiz at [mtemiz@metu.edu.tr].