First Year Medical Student
Istanbul University - Istanbul Faculty of Medicine
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Deniz Tuncer Tepe

Education

Istanbul University – Faculty of Medicine (Çapa)
Doctor of Medicine (MD), Year 1
2024 – Present

Research Interests

- Non-invasive physiological signal analysis
- EEG signal processing & source localization
- Wearable health technologies
- Multimodal biosignal analysis (mechanical & physiological signals)
- Neurotechnology & biomedical AI

Research Experience

Ongoing Research – Wearable Sensing for Swallowing Analysis
Under supervision of Prof. Dr. Beren Semiz (Koç University)
2024 – Present

- Involved in an ongoing research project focused on non-invasive analysis of swallowing-related physiological and mechanical signals
- **Contributions include:**
  - Literature review on dysphagia and swallow segmentation
  - Exploration of open-access biosignal datasets
  - Conceptual discussions on signal processing and model design
  - Collaboration with engineering researchers on preliminary analytical models
  - Project currently in early research phase, structured for further experimental expansion

EEG Research Exposure – Neurophysiology Laboratory
Istanbul University Faculty of Medicine, Under the supervision of Prof. Dr. Tamer Demiralp
2024 – Present

- Active involvement in EEG experiments and data acquisition sessions
- Hands-on experience with:
- EEG electrode placement and gel-based preparation
- Experimental setup and participant preparation
- Real-time troubleshooting during EEG recordings
- Currently developing foundational knowledge in:
- ERP and time–frequency analysis
- EEG preprocessing and interpretation using MATLAB

Laboratory Development Experience
3D Anatomy Laboratory – Istanbul University
Founding & Coordination Role (Setup Phase)
2024 – Present

- Actively involved in the **establishment of a 3D Anatomy Laboratory** within the Anatomy Department
- Responsibilities include:
- Planning laboratory infrastructure and equipment usage
- Integration of 3D scanning, modeling, and visualization tools for educational and research purposes
- Expected continued involvement in research activities following official laboratory setup

Data Analysis Experience

- Independent analysis of multivariate clinical stroke datasets using Python
- Utilized NumPy and Pandas for data cleaning, feature exploration, and statistical inspection
- Produced a documented Jupyter Notebook report linking clinical variables to neurological outcomes
- This exploratory work inspired subsequent research ideas in neurophysiology and wearable sensing
- Code & Report: github.com/deniztuncert/AI-Tip-Portfolyosu

Technical Skills
Signal Processing & Data Analysis

- EEG analysis (ERP, TFR – foundational level)
- MATLAB (signal processing, data visualization)
- Familiarity with FieldTrip concepts (learning phase)
- Jupyter Notebook-based data analysis

Programming & Tools

- MATLAB
- Python (NumPy, Pandas, Matplotlib)
- Experience with data-driven model prototyping (collaborative)
- Unity (C#) – interactive visualization and prototyping

3D & Visualization

- 3D scanning (structured light scanning)
- Basic 3D modeling and rendering (Blender)

Engineering & Project Experience
Applied Software Projects

- Developed an educational mobile application containing **30 interactive games** (Bursa Park project)
- Previously delivered **paid software projects** for technology-oriented organizations (including Teknopark-related initiatives)

Languages

- Turkish – Native
- English – Fluent
- Japanese – Beginner (actively learning)

Additional Activities

- Classical piano – 13 years of formal training
- Classical violin (beginner, orchestral participation)
- Strong interest in interdisciplinary research bridging medicine, engineering, and neuroscience

References

Available upon request

(Letters from academic supervisors provided separately if required)