

FUAT ARSLAN

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Research Focus: AI in Healthcare · Generative AI · Medical Imaging

EDUCATION

Bilkent University <i>M.S. in Electrical and Electronics Engineering</i> CGPA: 4.00/4.00 — Advisor: Prof. Tolga Çukur	Ankara, Turkey Sep 2023 – Jun 2026
Bilkent University <i>B.S. in Electrical and Electronics Engineering</i> CGPA: 3.88/4.00	Ankara, Turkey Sep 2018 – Jul 2023
Bilkent University <i>Second Major in Physics (Terminated by Own Decision)</i> CGPA: 3.82/4.00	Ankara, Turkey Sep 2020 – Jul 2023

EXPERIENCE

Graduate Research Assistant <i>National Magnetic Resonance Research Center (UMRAM)</i> - Member of the Imaging and Computational Neuroscience (ICON) Lab led by Prof. Tolga Çukur. - Working on deep learning algorithms for medical image synthesis. - Authored and co-authored over 10 publications in medical imaging and deep learning. - Developing a new agentic diffusion paradigm that transcends one-pass generation: refine images via test-time optimization.	Sep 2023 – Present Ankara, Turkey
Researcher <i>Hacettepe University Faculty of Medicine</i> - Led the development of deep learning models for melanoma classification. - Curated and annotated a novel dataset of ~5,000 dermoscopic images, facilitating robust model training and enabling future dermatology AI studies. - Developed and deployed a full-stack web application for AI-assisted melanoma risk assessment, currently used in pilot clinical studies at Hacettepe Hospital.	Aug 2022 – Jun 2024 Ankara, Turkey
Undergraduate Researcher <i>Bilkent University</i> Designed a novel recursive LightGBM implementation for time-series data under the supervision of Prof. Serdar Kozat.	Jan 2023 – Mar 2023 Ankara, Turkey
Research Intern <i>HAVELSAN</i> Built and deployed an AI-based real-time network intrusion detection system using PyTorch.	Aug 2022 – Sep 2022 Ankara, Turkey
Undergraduate Researcher <i>Bilkent University</i> Designed and implemented a chatbot with internet search, custom text learning, and voice interaction capabilities under Prof. Arnab Basu using PyTorch, ParlAI, and transformers.	May 2022 – Sep 2022 Ankara, Turkey
Candidate Engineer <i>ULAK Haberleşme</i> - Designed and implemented PL modules in Verilog/VHDL and PS software with OpenAMP/Libmetal on Zynq Ultrascale+ MPSoC, accelerating 5G-NR R&D workflows. - Developed firmware for heterogeneous systems, integrating FreeRTOS, bare-metal, and Embedded Linux to optimize system-level performance.	Aug 2021 – Mar 2022 Ankara/Istanbul, Turkey
Undergraduate Researcher <i>National Magnetic Resonance Research Center (UMRAM)</i> Built an MRI coil voltage control system ensuring stable current, deployed on the VC707 Board using VHDL and MATLAB, in collaboration with Reza Babaloo and Prof. Ergin Atalar.	Feb 2021 – Jun 2021 Ankara, Turkey

PUBLICATIONS

Journal Articles

- F. Arslan**, B. Kabas, O. Dalmaz, M. Ozbey, and T. Çukur, “Self-Consistent Recursive Diffusion Bridge for Medical Image Translation,” *Medical Image Analysis*, vol. 106, p. 103747, 2025. doi:10.1016/j.media.2025.103747.
- B. Kabas, **F. Arslan**, V. A. Nezhad, S. Ozturk, E. U. Saritas, and T. Çukur, “Physics-Driven Autoregressive State Space Models for Medical Image Reconstruction,” *arXiv:2412.09331*, 2025. arXiv.
- V. A. Nezhad, G. Elmas, B. Kabas, **F. Arslan**, and T. Çukur, “Generative Autoregressive Transformers for Model-Agnostic Federated MRI Reconstruction,” *arXiv:2502.04521*, 2025. arXiv.

- O. F. Atli, B. Kabas, **F. Arslan**, M. Yurt, O. Dalmaz, and T. Çukur, “I2I-Mamba: Multi-modal Medical Image Synthesis via Selective State Space Modeling,” *arXiv:2405.14022*, 2024. arXiv.
- **F. Arslan** and T. Arslan, “Development of an Artificial Intelligence-Based Diagnostic System Using Dermoscopic Images and Evaluation of the Diagnostic System’s Place in Dermatology,” Hacettepe University, 2024.

Conference Papers

- **F. Arslan**, B. Kabas, O. Dalmaz, M. Ozbey, and T. Çukur, “A Self-Consistent Diffusion Schrödinger Bridge for Multi-Modal Medical Image Translation,” *ISMRM*, 2025.
- O. F. Atli, B. Kabas, **F. Arslan**, A. C. Demirtaş, M. Yurt, O. Dalmaz, and T. Çukur, “Multi-Contrast MR Image Synthesis with Episodic State-Space Modeling,” *ISMRM*, 2025.
- **F. Arslan**, M. B. Yılmaz, and T. Çukur, “Robust Brain Tumor Segmentation with Deep Residual Supervision and Mixed Precision Training,” *IEEE SIU*, May 2024.
- M. U. Mirza, **F. Arslan**, and T. Çukur, “Super Resolution MRI via Upscaling Diffusion Bridges,” *IEEE SIU*, May 2024.
- B. Kabas, **F. Arslan**, and T. Çukur, “Multi-Contrast MR Image Synthesis with a Brownian Diffusion Model,” *IEEE SIU*, May 2024.
- V. A. Nezhad, G. Elmas, **F. Arslan**, B. Kabas, and T. Çukur, “Generalizable Deep MRI Reconstruction with Cross-Site Data Synthesis,” *IEEE SIU*, May 2024.

HONORS

- **ISMRM Magna Cum Laude Merit Award** (2025) — Spotlight abstract, Honolulu, USA.
- **Best Paper Award** — Bilkent Graduate Research Conference (2025).
- **TÜBİTAK Scientist Supporting Scholarship** — Merit-based stipend during M.Sc.
- Ranked 5th nationwide — Teknofest 2023 AI in Healthcare (Team Engineer Docs).
- Ranked 633rd among ~2M participants — National University Entrance Exam (2018).

ACADEMIC DUTIES

- **Reviewer** — *Medical Image Analysis (MEDIA)* and *IEEE Transactions on Medical Imaging (TMI)* (2025–present).
- **Invited Talk** — “Learning Types: Classical to Deep,” *Artificial Intelligence in Dermatology*, 2025.

TEACHING & LEADERSHIP

Head Teaching Assistant — EEE 202 Circuit Theory	Aug 2023 – Jun 2026
<i>Bilkent University</i>	<i>Ankara, Turkey</i>
• Led laboratory sessions, graded coursework, supervised projects, and coordinated a team of 14–16 TAs each semester. • Prepared and updated lab materials; managed course administration.	
President	Jan 2022 – Jul 2023
<i>Bilkent Programming Club</i>	<i>Ankara, Turkey</i>
• Managed official affairs and events; conducted tutorials on Machine Learning and VHDL. • Led university autonomous car efforts: traffic sign detection & classification, data labeling, and model training pipelines.	

TECHNICAL SKILLS

Programming: Python, MATLAB, VHDL, Verilog
ML Frameworks: PyTorch, HuggingFace Transformers, MONAI
Embedded/Systems: Vivado, Vitis, Petalinux, FreeRTOS, OpenAMP, Libmetal
Languages: English (Proficient), Turkish (Native), German (Elementary)

SELECTED PROJECTS

Visual Odometry Navigation <i>Python, PyTorch</i>	Nov 2022 – Jun 2023
• Developed robot navigation integrating visual odometry, IMU, and GNSS; senior project in collaboration with ROKETSAN.	