

Professional Experience

- Nov. 2024 - Present **Research Fellow**, *Università Campus Bio-Medico di Roma*, Italy
- Nov. 2021 – Oct. 2024 **Doctoral Researcher**, *Humanitas University*, Italy
- Sept. 2019 – Sept. 2021 **Research Assistant**, *Middle East Technical University Northern Cyprus Campus*, Turkey

Education

- Present **PhD in Artificial Intelligence (Health and Life Sciences)**, *Università Campus Bio-Medico di Roma*, Italy
- **Thesis title:** A Multimodal Approach for Histological Subtype Classification in NSCLC Using PET and CT Images (tentative)
 - **Supervisors:** Prof. Letterio Salvatore Politi, Prof. Arturo Chiti, Prof. Paolo Soda
- 2021 **MSc in Electrical and Electronics Engineering**, *Middle East Technical University Northern Cyprus Campus*, Turkey
- **Thesis title:** Person Re-identification Using Convolutional Neural Networks
 - **Supervisor:** Assoc. Prof. Cem Direkoğlu
- 2019 **BSc in Electrical and Electronics Engineering**, *Middle East Technical University Northern Cyprus Campus*, Turkey
- **Thesis title:** Autonomous UAV Navigation Using a Monocular Camera
 - **Supervisor:** Assoc. Prof. Cem Direkoğlu

Post-master Courses

- July 6-9, 2024 **OxML 2024: Oxford Machine Learning Summer School**, AI for Global Goals
- Sept. 25-29, 2023 **PhD School on AI in Health and Life Sciences**, *Università Campus Bio-Medico di Roma*
- July 13-16, 2023 **OxML 2023: Oxford Machine Learning Summer School**, AI for Global Goals
- Sept. 26-30, 2022 **PhD School on AI in Health and Life Sciences**, *Università Campus Bio-Medico di Roma*
- March, 2022 **AI for Medicine Specialization**, *Coursera*
- March, 2021 **Deep Learning Specialization**, *Coursera*

Grants and Scholarships

- 2024 **Research Grant**, *Università Campus Bio-Medico di Roma*, Duration: 2 years
Research title: "Artificial Intelligence Methods for the Development of Predictive Tools in Lung Cancer"
- 2021 **Grant for the XXXVII Italian National PhD Program in Artificial Intelligence**, *Università Campus Bio-Medico di Roma*, Duration: 3 years
- 2019 **Grant for the Master's degree in Electrical and Electronics Engineering**, *Middle East Technical University Northern Cyprus Campus*, Duration: 2 years
- 2011 **100% Tuition fee waiver for Bachelor's degree in Electrical and Electronics Engineering**, *Middle East Technical University Northern Cyprus Campus*, Duration: 5 years

Awards

July 2023 **Winner of the MLxCases Health Competition**, Oxford Machine Learning Summer School 2023, AI for Global Goals

Teaching

Teaching Assistanship

2024 – 2025 **Fundamentals of Computer Science**, 10 ECTS, Bachelor's Degree in Biomedical Engineering, Faculty of Engineering, Università Campus Bio-Medico di Roma

2023 – 2025 **Fundamentals of Computer Science**, 5 ECTS, Master's Degree in MedTech, Faculty of Medicine and Surgery, Università Campus Bio-Medico di Roma

Supervision

2025 **Júlia Ortiga Carrillo**, *Bachelor's Degree in Biomedical Sciences*, International University of Catalonia, Thesis title: "Health disinformation: an AI model for COVID-19 rumour detection in the digital era"

Academic Service

Journal Reviewer

2025 – Present **Expert Systems With Applications**, *Elsevier*

Conferences

Program Committee Member

2023 – 2025 **IEEE International Symposium on Computer-Based Medical Systems (CBMS)**

Reviewer

2025 **International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)**

2025 **International Conference on Machine Vision Applications (MVA)**

Research Interests

My research focuses on deep learning methods applied to biomedical domains, with an emphasis on the diagnosis and prognosis of non-small cell lung cancer (NSCLC). From a methodological standpoint, my work can be divided into three main areas:

- **Medical Foundation Models:** I investigated the application of 3D medical vision foundation models for NSCLC subtype classification by leveraging their embeddings from 3D CT scans, enhancing representation learning [10].
- **Multimodal Deep Learning:** To investigate the benefits of multimodal deep learning in biomedical research, we reviewed the literature on its use, particularly focusing on the intermediate fusion approach [8]. Additionally, I implemented a novel intermediate fusion method to combine CT and PET images for the classification of histological subtypes in NSCLC [7, 9].
- **Resilient AI:** I examined the advantages of triplet loss over traditional cross-entropy loss, particularly in scenarios involving small datasets [4]. Furthermore, I investigated federated learning techniques to enhance privacy while expanding dataset sizes by combining data from multiple institutions, also integrating these methods with triplet networks [6].

Rome – Italy

✉ fatih.aksu@unicampus.it • [aksufatih.github.io](https://github.com/aksufatih) •  [Fatih Aksu](#)

 [aksufatih](#) •  [aksu-fatih](#)

Publications

- [10] **Aksu, F.**, Gelardi, F., Chiti, A. and Soda, P., 2025. NSCLC histological subtype classification from CT scans using generalist 3D medical foundation models. *13th IEEE International Conference on Healthcare Informatics (ICHI)*. **Accepted**
- [9] **Aksu, F.**, Gelardi, F., Chiti, A. and Soda, P., 2025. Multi-stage intermediate fusion for multimodal learning to classify non-small cell lung cancer subtypes from CT and PET. *Pattern Recognition Letters*.
- [8] Guarrasi, V., **Aksu, F.**, Caruso, C.M., Di Feola, F., Rofena, A., Ruffini, F. and Soda, P., 2025. A Systematic Review of Intermediate Fusion in Multimodal Deep Learning for Biomedical Applications. *Image and Vision Computing*, p.105509
- [7] **Aksu, F.**, Gelardi, F., Chiti, A. and Soda, P., 2024, December. Toward a Multimodal Deep Learning Approach for Histological Subtype Classification in NSCLC. In *2024 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)* (pp. 6327-6333). IEEE.
- [6] **Aksu, F.**, Cordelli, E., Gelardi, F., Chiti, A., Soda, P., 2024. Enhancing NSCLC Histological Subtype Classification: A Federated Learning Approach Using Triplet Loss. In *International Conference on Pattern Recognition* (pp. 154-168). Cham: Springer Nature Switzerland.
- [5] **Aksu, F.**, Bria, A., Caragliano, A.N., Caruso, C.M., Chen, W., Cordelli, E., Coser, O., Francesconi, A., Furia, L., Guarrasi, V. and Iannello, G., 2024. Towards AI-driven Next Generation Personalized Healthcare and Well-being. In *Ital-IA 2024, 4th National Conference on Artificial Intelligence, organized by CINI, May 29-30, 2024, Naples, Italy* (pp. 360-365). CEUR-WS.
- [4] **Aksu, F.**, Gelardi, F., Chiti, A. and Soda, P., 2023, June. Early Experiences on using Triplet Networks for Histological Subtype Classification in Non-Small Cell Lung Cancer. In *2023 IEEE 36th International Symposium on Computer-Based Medical Systems (CBMS)* (pp. 832-837). IEEE.
- [3] Guarrasi, V., Tronchin, L., Caruso, C.M., Rofena, A., Manni, G., **Aksu, F.**, Paolo, D., Iannello, G., Sicilia, R., Cordelli, E. and Soda, P., 2023. Building an AI-enabled metaverse for intelligent healthcare: opportunities and challenges. In *Ital-IA 2023, Italia Intelligenza Artificiale Thematic Workshops, co-located with the 3rd CINI National Lab AIIS Conference on Artificial Intelligence (Ital IA 2023), Pisa, Italy, May 29-30, 2023* (pp. 134-139). CEUR-WS.
- [2] **Aksu, F.** and Direkoğlu, C., 2021, June. Lightweight Convolutional Neural Networks for Person Re-Identification. In *2021 3rd International Congress on Human-Computer Interaction, Optimization and Robotic Applications (HORA)* (pp. 1-5). IEEE.
- [1] **Aksu, F.** and Direkoğlu, C., 2020. Person Re-Identification in Surveillance Videos using Deep Learning based Body Part Partition and Gaussian Filtering. *Avrupa Bilim ve Teknoloji Dergisi*, pp.291-296.

May 29, 2025

Rome – Italy