Maria Athanasiou, MEng, PhD

Postdoctoral Researcher

Biomedical Simulations and Imaging Laboratory

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EDUCATION

- **2023 —** PhD, School of Electrical and Computer Engineering, National Technical University of Athens (NTUA). Thesis: "Development of Interpretable Machine Learning Models to Support Diabetes Management." Supervisor: Prof. Konstantina Nikita.
- **2015 —** MEng in Electrical and Computer Engineering, NTUA. Diploma Thesis: "Development of a Closed Loop Glucose Controller for Individuals with Type 1 Diabetes based on the Use of Proportional Derivative Control with Fading Memory." Supervisor: Prof. Konstantina Nikita.

ACADEMIC POSITIONS

- **03/2023 – Present:** Postdoctoral Researcher, Biomedical Simulations and Imaging Laboratory, School of Electrical and Computer Engineering, NTUA
- **10/2022 – Present:** Administrative Editor, IEEE Transactions on Antennas and Propagation, IEEE
- **09/2019 – 09/2022:** Administrative Editor (inaugural), IEEE Open Journal of Antennas and Propagation, IEEE
- **10/2015 – 02/2023:** PhD Researcher, Biomedical Simulations and Imaging Laboratory, School of Electrical and Computer Engineering, NTUA
- **09/2017 – 09/2020:** Machine Learning Engineer & Co-founder, Nous4Health

RESEARCH INTERESTS

- Intelligent decision support systems with emphasis on bias identification and mitigation across data, model, and human factors
- Multimodal biomedical data processing combining machine learning with pathophysiological knowledge
- Explainable AI: Development of innovative methods for interpretable AI, producing reliable explanations at the feature attribution level, semantic level, and example-based level
- Adaptability and continual learning of AI systems under domain shift, with active learning and unsupervised domain adaptation
- Human-centered AI and hybrid intelligence approaches enabling effective human–AI interaction

TEACHING EXPERIENCE

- **2026 – Present:** Adjunct Lecturer, undergraduate course "Artificial Intelligence," Department of Industrial Management and Technology, University of Piraeus
- **2024 – Present:** Lecturer, MSc Program "Translational Engineering in Health and Medicine," NTUA. Courses: Artificial Intelligence in Healthcare, Research Methodology
- **2016 – Present:** Teaching Assistant, NTUA. Undergraduate courses: e-Health Technologies, Physiological Systems Modeling, Biomedical Technology Laboratory, Medical Imaging and Image Processing
- **2020 – Present:** Diploma thesis advisor for 14 undergraduate/graduate students; co-supervision of 4 PhD students at the Biomedical Simulations and Imaging Laboratory, NTUA

SCIENTIFIC & ADMINISTRATIVE ACTIVITIES

- Reviewer: IEEE Trans. on Biomedical Engineering, IEEE Journal of Biomedical and Health Informatics, Springer Nature, Journal of Medical Internet Research, IEEE EMBC (2020–2025)
- Organizing Committee Member, IEEE International Symposium on Biomedical Imaging 2024
- Session Chair, IEEE EMBC 2024
- Chair (2024 – Present), IEEE Women in Engineering Greece Section Affinity Group
- Member of IEEE (2022 – Present) and the Technical Chamber of Greece (2016 – Present)

SELECTED AWARDS

- Best Student Paper Award, 20th IEEE International Conference on BioInformatics and BioEngineering (BIBE), 2020
- Second Prize, HackCoronaGreece 2020 (NTUA team – SMARTY: COVID-19 self-assessment via audio signal analysis)
- Eurobank EFG & Greek Ministry of Education Honorary Award – Top 1% in Panhellenic University Admission Examinations (2008)

SELECTED PUBLICATIONS

>30 publications in international peer-reviewed journals and conferences. Full list: Google Scholar.

Journal articles

- I. Siachos, M. Athanasiou, K. Zarkogianni, A.C. Thanopoulou, K.S. Nikita, "Interpretable Graph Convolutional Networks for cardiovascular disease risk prediction in patients with Type 2 Diabetes Mellitus", Journal of Biomedical Informatics, 178, 105015, 2026.
- T. Ganitidis, M. Athanasiou, K. Mitsis, K. Zarkogianni, K.S. Nikita, "A Comprehensive Drift-Adaptive Framework for Sustaining Model Performance in COVID-19 Detection From Dynamic Cough Audio Data," J Med Internet Res, 2025.
- M.E. Vlontzou, M. Athanasiou, K.V. Dalakleidi, I. Skampardoni, C. Davatzikos, K.S. Nikita, "A comprehensive interpretable machine learning framework for mild cognitive impairment and Alzheimer's disease diagnosis," Scientific Reports, vol. 15, 2025.
- M. Athanasiou, G. Fragkozidis, K.S. Nikita, "Long Short-term Memory–Based Prediction of the Spread of Influenza-Like Illness Leveraging Surveillance, Weather, and Twitter Data," J Med Internet Res, vol. 25, e42519, 2023.
- A. Kiourti, A.M. Abbosh, M. Athanasiou et al., "Next-Generation Healthcare: Enabling Technologies for Emerging Bioelectromagnetics Applications," IEEE Open J. of Antennas and Propagation, vol. 3, pp. 363–390, 2022.
- K. Zarkogianni, M. Athanasiou, A.C. Thanopoulou, K.S. Nikita, "Comparison of machine learning approaches towards assessing the risk of developing Cardiovascular disease as a long-term diabetes complication," IEEE J. of Biomedical and Health Informatics, vol. 22, pp. 1637–1647, 2018.

Conference papers

- M. Athanasiou, N. Myropoulou, K. Zarkogianni, K.S. Nikita, "Development of personalized interpretable multilevel prediction models for the risk assessment of hypoglycemia in Type 1 Diabetes," IEEE EMBC, 2024.
- T. Ganitidis, M. Athanasiou, K.S. Nikita, "Uncertainty-Informed Active Learning Using Monte Carlo Dropout for Risk Stratification in Carotid Ultrasound Imaging," IEEE BHI, 2024.
- M. Athanasiou, K. Zarkogianni, K. Karytsas, K.S. Nikita, "An LSTM-based Approach Towards Automated Meal Detection from Continuous Glucose Monitoring in Type 1 Diabetes Mellitus," IEEE BIBE, 2021.
- M. Athanasiou, K. Sfrintzeri, K. Zarkogianni, A. Thanopoulou, K.S. Nikita, "An Explainable XGBoost-Based Approach Towards Assessing the Risk of Cardiovascular Disease in Patients with Type 2 Diabetes Mellitus," IEEE BIBE, 2020. (Best Student Paper Award)

SKILLS & LANGUAGES

- **IT skills:** Python, MATLAB, SPSS; MS SQL Server, MySQL; Windows/Linux/Android; Adobe Photoshop; WordPress
- **Funding experience:** Preparation and submission of research proposals (Horizon Europe, EIC Pathfinder, NSRF, HFRI)
- **Languages:** Greek (native); English (C2, Cambridge Proficiency); German (C1, Goethe Mittelstufe)