

Curriculum Vitae (CV)

Giorgos Papanastasiou

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1. General Information

Name	Giorgos Papanastasiou
Education	M.Eng, MSc, MSc.R, PhD
Current Position:	Associate Research Professor, Research Center for Pure and Applied Mathematics, Academy of Athens and Principal Researcher, Archimedes Unit, Athena Research Center
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Research Interests

- Development of novel Machine and Deep Learning algorithms for the processing of multimodal biological and medical data.
- Integration of heterogeneous data sources in Bioinformatics and Medicine.
- Development of generative models (e.g., diffusion models, Transformers) for data synthesis, biomarker extraction, classification and segmentation.
- Causal artificial intelligence for the development of clinical decision support systems and the prediction of biomolecular function.
- Exploration of theoretical and applied aspects of causal artificial intelligence (Causal AI) and generative models.
- Multiple physiological and pathological systems (Cardiovascular, Respiratory, Neurology, Oncology, Musculoskeletal, Metabolism, Rare Diseases).

2. Education

A summary of the key details of all academic degrees is provided in the Appendix.

- 2011-2016, **PhD in Computational Imaging (MRI, CT, PET) and Multimodal Image and Signal Analysis**, University of Edinburgh, United Kingdom
 - 4 publications in high-impact journals (3 as first author)
 - Thesis title: Quantification of cardiac magnetic resonance perfusion imaging in a clinical setting at 3T
 - Supervisors: Professor Scott Semple, Professor David Newby.
 - External examiner: Professor David Buckley, University of Leeds, United Kingdom.
- 2010-2011, **MSc by Research in Cardiovascular Biology**, University of Edinburgh, United Kingdom. Dissertation awarded with Distinction: 75%. Focus on 3 research projects: 1. bioinformatics, 2. mathematical modelling of cell and microbubble nanomechanics, 3. medical physics.
- 2007-2009, **MSc (Postgraduate Diploma of Specialisation) in Biomedical Engineering**. National Technical University of Athens – University of Patras, Greece, and University Medical Center Groningen, the Netherlands (GPA: 7.9/10.0; MSc thesis with Distinction: 9.0/10.0).
- 2001-2006, **Diploma in Materials Science and Engineering (5-year degree)**. University of Ioannina, Greece (GPA: 6.8/10.0; diploma thesis with Distinction: 10.0/10.0).

3. Professional Experience

2025-Present	Associate Research Professor, Research Center for Pure and Applied Mathematics , Academy of Athens
2023-Present	Principal Researcher, Archimedes Unit , Athena Research Center Project: Unveiling the true value of data (proposal submitted; success rate = 14%)
2023-2025	Senior Manager, Artificial Intelligence and Data Science Center for Digital Innovation, Pfizer Inc, Greece
2022-Present	Associate Editor , IEEE Journal of Biomedical and Health Informatics (IF=7.7).
2021-2023	Manager, Artificial Intelligence and Data Science , Center for Digital Innovation, Pfizer Inc, Greece.
2020-2021	Assistant Professor (faculty member) in Artificial Intelligence and Engineering in Medicine, University of Essex, United Kingdom.
2018-2020	Permanent Research Fellow (faculty member, equivalent to Lecturer in the US) in " Computational Multimodal Imaging and Data Analysis ", Edinburgh Imaging-QMRI, University of Edinburgh, United Kingdom.
2015-2020	Assistant Director of the Image and Data Analysis Laboratory, Edinburgh Imaging-QMRI, University of Edinburgh, United Kingdom.
2015-2017	Postdoctoral Researcher in " Computational Multimodal Imaging and Data Analysis ", University of Edinburgh, United Kingdom.
2008-2009	Internship in Medical Imaging and Image Analysis , at the University Medical Center Groningen, the Netherlands.

4. Teaching

- Course design and teaching as Module Leader at the School of Computer Science and Electronic Engineering, University of Essex, for 3 undergraduate and postgraduate modules (academic year 2020-2021).

20 teaching hours and 20 laboratory hours per module per academic year

“An approachable Introduction to programming”, b. “An approachable Introduction to programming (15 credits),” c. “An approachable Introduction to programming (20 credits)”. Introduction to programming and data analysis in Python. Further information is available on the University of Essex website (modules CE156/CE157).

- Design and teaching of 3 courses in the Medical Physics and Informatics master's programme (MPhys) at the School of Physics and Astronomy, University of Edinburgh (academic years: 2018-2020; contact: Dr Paul Clegg).

Course topics per academic year:

10 teaching hours and 10 laboratory hours per course per academic year

“Tomography basics”: Teaching the principles of modern physics, biosignal processing and mathematical methods in PET-CT/SPECT-CT/CT and MR.

“MRI Quantification” Modern image analysis, post-processing and quantification techniques in medical imaging (non-ionising radiation techniques: MRI).

“PET Quantification” Modern image analysis, post-processing and quantification techniques in medical imaging (ionising radiation techniques: PET-CT, PET-MR).

- Design and teaching of 2 courses in the Medical Physics and Computational Analysis master's programme (MPhys) at the School of Physics and Astronomy, University of Edinburgh (academic year 2017-2018; contact: Professor Daniel P Watts).

Course topics per academic year:

10 teaching hours and 10 laboratory hours per course per academic year

“Tomography basics”: Teaching the principles of modern physics, biosignal processing and mathematical methods in PET-CT/SPECT-CT/CT and MR.

“Modern quantification techniques in Medical Imaging” Modern image analysis, post-processing and quantification techniques in medical imaging (with emphasis on PET-MR, PET-CT, MRI).

5. Supervision

5.1 PhD Supervision

- **Primary supervisor of 2 new PhD students** in the field of multimodal Causal Artificial Intelligence in healthcare, within the "Archimedes" research project:
2023-Present.
Thomas Melistas, research topic: visual confounding estimation and concept learning toward developing robust classifiers in computer vision
Nikos Spyrou, research topic: counterfactual generation in medical and natural videos
- **Primary supervisor of 2 junior researchers in the field of** Causal Machine Learning in Precision Medicine:
2026-Present. Thanasis Triantafyllou
2026-Present. Angelos Korakitis
- **Supervision of an MSc thesis in bioinformatics and proteomic analysis in mice**, in collaboration with Research Professor Kostas Vekrellis at the Biomedical Research Foundation of the Academy of Athens (BRFAA).
2026-Present. Christina Papadimitriou
- **Supervision** of PhD candidate
2020-2023 Janadhip Jakutprakart on the analysis of medical imaging and radiology data using machine learning and NLP, with emphasis on disease prediction and classification.
- **Co-supervision** of PhD candidate
2017-2020 Agisilaos Chartsias on machine learning techniques for the analysis of cardiac magnetic resonance imaging data.
- **Co-supervision** of PhD candidate
2017-2021 Alex Przybylski on bioinformatics methods for the analysis of molecular data (proteomics, transcriptomics) from patient blood samples, combined with machine learning on lung computed tomography data.

5.2 Undergraduate and Postgraduate Supervision

- 2020-2021 **Supervision** of a group of 30-35 students
within module CE291-5-FY (research skills development) at the School of Computer Science and Electronic Engineering, University of Essex.

- 2020-2021 **Supervision** of 6 students' final-year projects (1-year research) within module CE301 at the School of Computer Science and Electronic Engineering, University of Essex.
- 2019-2020 **Supervision** of an MSc dissertation (student: Isobel Coleman) on pharmacokinetic modelling of dynamic magnetic resonance imaging data. Collaboration with the School of Physics and Astronomy, University of Edinburgh.

5.3 Researcher Training

- 2015-2020 **Training** of researchers (BSc/MSc/PhD/postdoctoral) in medical imaging and data analysis methods. Weekly presentations at the "Image and Data Analysis" laboratory.

6. Research Grants Awarded

The term “Principal Investigator, **PI**” below denotes projects for which I am responsible for leading and conducting the research study.

“Co-Investigator, **CO-I**” refers to projects in which I have made a significant contribution to leading major parts of the study, as well as to the preparation and writing of the research proposal.

The term “Grant Associate, **GA**” denotes my collaborations and contribution to the preparation and writing of the research proposal.

The term “Research agreement, **RA**” describes my collaboration on a research grant as a partner, with my main role being the technical development of the computational analysis.

6.1 Table of Funded Projects

Role and funded projects in summary tabular form (further details for each project are given on the following pages)

Note: + denotes additional funds for publications, presentations, conference attendance and business travel

Role	Research Area	Funding Source	Name/Description	Budget
PI	Causality, Artificial Intelligence (AI), multimodal imaging	Archimedes/ NextGenerationEU	Archimedes Grant	€ 350,000.00 +
PI	Causality, Machine Learning in precision medicine	Archimedes/ NextGenerationEU	Archimedes Grant	€ 30,000.00 +
PI	AI, multimodal data, cancer research	IMI2 EU	OPTIMA	€ 232,000.00 +
PI	Multimodal magnetic resonance imaging, cardiovascular disease	Athersys Inc	Commercial Research Agreement with Athersys Inc	€ 190,192.55
CO-I	AI, multimodal data, drug discovery, cancer	Hangzhou City Council	AI and drug discovery	€ 263,903.20

CO-I	AI, multimodal data, bone marrow adiposity and human health	Medical Research Council	OPTIMAT	€ 812,384.15
CO-I	AI, whole-slide images, multiple diseases and drug discovery	IMI EU	BIGPicture	€ 200,000.00
CO-I	AI, radiology, genetics, transcriptomics, cancer research	Public Investment Programme, Ministry of Education, Religious Affairs and Sports	Radiogenomics in cancer research	€ 19,895
CO-I	Artificial Intelligence, genetic analysis, cancer	Public Investment Programme, Ministry of Education, Religious Affairs and Sports	Artificial Intelligence in Medicine and Biotechnology	€ 27,725
CO-I	Artificial Intelligence, digital breast tomosynthesis, cancer	Carnegie Trust	Digital breast tomosynthesis and AI	€ 8,403.45
GA	Artificial Intelligence, multimodal magnetic resonance imaging, cardiovascular disease	Engineering and Physical Sciences Research Council	Machine learning, multimodal magnetic resonance imaging	€ 121,095.90
GA	Computational models, magnetic resonance imaging, cardiovascular disease	British Heart Foundation	MEMRI, multimodal magnetic resonance imaging, pharmacokinetic models	€ 309,651.15
GA	Artificial Intelligence, computed tomography,	Edinburgh Lung Fibrosis Endowment	AI, pulmonary fibrosis	€ 23,998.00

	pulmonary fibrosis, transcriptomics			
RA	Computational models, PET-MR imaging, Neurology	GE Healthcare, MRC, Stroke Association and Wellcome Trust	Cerebral amyloid angiopathy (CAA)	€ 20,042.94
RA	Multimodal MRI, Cardiovascular Disease	National Institute for Health Research	Cardiac Care	€ 46,436.13
RA	Multimodal MRI, Cardiovascular Disease	British Heart Foundation	EVOLVED	€ 24,237.98
RA	PET-CT, Cardiovascular Disease	Wellcome Trust	PREFFIR	€ 23,998.00
RA	Multimodal Magnetic Resonance Imaging, Sjögren's syndrome	<i>GlaxoSmithKline Inc</i>	Commercial Research	€ 18,001.65
PhD	Multimodal (MRI, CT, PET) pharmacokinetic modelling	British Heart Foundation	PhD Scholarship	€135,644.16
Total funding contribution				€ 2,810,036.87
Total contribution as PI				€ 802,192.55

6.2 Ongoing Projects (detailed)

1. **PI: Dr Giorgos Papanastasiou, Professor Sotirios Tsaftaris.** "Unveiling the true value of data". 1st "Archimedes" Call for Collaborating Researchers. Timeline and total budget to be confirmed and announced. €350,000+ (**success rate = 14%**).
2. **PI: Dr Giorgos Papanastasiou, Dr Antigone Papavasiliou.** "Unveiling the causal risk factors of Cerebral Palsy (CP) through Causal AI." Development of Causal Artificial Intelligence models for the early identification of CP risk factors, leveraging data from the Cerebral Palsy Register of Attica and from European countries through the SCPE network. Supported by the Archimedes Unit, Athena Research Center. Timeline: 12 months (pilot study). Total budget: €30,000+.
3. **PI: OPTIMA IMI project:** Optimal treatment for solid tumours through Artificial Intelligence (AI). PI & Lead of WP7 (AI algorithms). Aim: leveraging AI to advance treatments for prostate, breast and lung cancer. Development of an interoperable oncology data platform covering >200 million individuals (GDPR-compliant). (6 pharmaceutical companies, >35 academic institutions/SMEs/patient organisations). €232,000.00+
4. **CO-I: BIGPicture IMI project:** Development of AI models on Whole Slide Imaging (WSI) data for the detection of (normal/abnormal) patterns in WSI data. Applications in toxicology and drug efficacy. (€200,000.00, 10 pharmaceutical companies, >30 academic institutions/SMEs).
5. **CO-I: "A Digital Platform of an AI-aided pipeline for drug development in targeted therapy of cancer". PI: Dr Chengjia Wang:** €263,903.20 (£220,000). Seed funding from Hangzhou City Council in collaboration with the Imperial Institute of Advanced Technology in Hangzhou, China, and Imperial College London. Lead scientist in the development of machine learning and scientific computing techniques for the analysis of molecular data (genomics, proteomics) from local hospital databases in the Hangzhou City Council area.
6. **CO-I: "OPTIMAT: POPulaTion-level Imaging, genomic and phenotypic analyses to determine how bone Marrow AdiposiTy impacts human health"** funded by the **Medical Research Council**. € 812,384.15 (£ 677,094), PI: Dr William Cawthorn, start date August 2019.

Lead scientist in the development of image analysis, medical imaging and machine learning techniques for big data: up to 100,000 patient magnetic resonance imaging datasets and molecular data (genomics, transcriptomics) from 500,000 patients in the UK Biobank database.
7. **CO-I:** Funded by the Public Investment Programme, Ministry of Education, Religious Affairs and Sports. Clustering of patients and genes by cancer type to identify associations between them (e.g., mutations, gene expression) and development of a novel machine learning model for the analysis of these data. € 27,725, PI: Research Professor, Dr G. Kastis.
8. **CO-I:** Funded by the Public Investment Programme, Ministry of Education, Religious Affairs and

Sports. Radiogenomics in cancer research through the development of machine learning models on radiology, genetics and transcriptomics data. € 19,895, PI: Associate Research Professor, Dr N. Dikaïos.

6.3 Completed Projects (detailed)

9. **RA:** Funded by **GE Healthcare, NHS Lothian** and **The Stroke Association**. Participation in a clinical research project involving PET/MR imaging and analysis in Cerebral Amyloid Angiopathy (CAA). Project title: "Is CAA associated with stroke due to intracerebral haemorrhage?" €20,042.94 (£16,704.54). PI: Professor Rustam Al-Shahi Salman, 2017. Development of a computational data analysis protocol and of novel algorithms for pharmacokinetic modelling.

10. **GA: Edinburgh Lung Fibrosis Endowment: Research on pulmonary fibrosis using machine learning and texture analysis of computed tomography, compared with molecular endotyping.** €23,998. PIs: Professor Edwin van Beek and Dr Nikhil Hirani, 2017. Co-supervision of a PhD student, aiming at the development and evaluation of computed tomography against molecular data analysis.

11. **RA:** Funded by the **National Institute for Health Research (NIHR): "A multicentre prospective randomised open-label blinded end-point controlled trial of cardiac troponin I-guided combination angiotensin receptor blockade and beta blocker therapy to prevent cardiac toxicity in anthracycline treated breast cancer patients (Cardiac Care)."** € 46,436.13 (£ 38,700). PI: Dr. Peter Henriksen, 2018.

Development of a computational data analysis protocol for cardiovascular magnetic resonance imaging data; provision of training and supervision to the research staff implementing the protocol.

12. **RA:** Contribution to the research programme entitled "**Early Valve Replacement guided by Biomarkers of Left Ventricular Decompensation in Asymptomatic Patients with Severe Aortic Stenosis (EVOLVED).**" € 24,237.98 (£ 20,200), PI: Professor Marc Dweck.

Development of a computational analysis protocol for cardiovascular magnetic resonance imaging data; training and supervision of research staff.

13. **RA:** Contribution to the research programme entitled "**Prediction of Recurrent Events With 18F-Fluoride (PREFFIR)**", a multicentre (N=6) research study using PET/CT. € 23,998 (£ 20,000). PI: Prof David Newby, 2016.

Researcher: a) Analysis of images from NCRI phantoms for cross-site harmonisation. b) Investigation of data analysis algorithms for biomarker development.

14. **PI: Commercial research project agreement.** Multicentre clinical trial investigating stem cell therapy and stenting in coronary artery disease using multiparametric magnetic resonance imaging and analysis. Research services agreement with the pharmaceutical company Athersys Inc. € 190,192.55 (£ 158,507).

15. **CO-I:** Research grant from the Carnegie Trust for the Universities of Scotland: Non-invasive measures of breast cancer risk: image analysis of digital mammograms and tissue lobule content. €

8,403.45 (£7,002), PI: Dr. Jonine Figueroa, 2016

- 16. GA:** Funded by the EPSRC (EP/P0229281), project title: "**Machine learning for the analysis of multimodal cardiac MR images used in the diagnosis of coronary heart disease.**" € 121,095.90 (£ 100,904), PI: Dr. Sotirios Tsaftaris, 2017

Lead researcher in the development and evaluation of machine learning methods for multimodal cardiac magnetic resonance imaging.
- 17. GA:** Manganese-Enhanced Magnetic Resonance Imaging (MEMRI), funded by the British Heart Foundation. € 309,651.15 (£ 260,408). PI: Professors Scott Semple and David Newby.

Lead researcher, contributing to the design of the imaging and image analysis protocol, and to the quantification of healthy and functional myocardium using pharmacokinetic models.
- 18. RA:** Commercial research project agreement. Multicentre clinical trial investigating Sjögren's syndrome using magnetic resonance imaging and analysis. € 18,001.65 (£ 15,000), 2016 (researcher in a commercial project with the pharmaceutical company GlaxoSmithKline).
- 19. BHF-funded PhD scholarship:** Multi-modal (MRI, CT, PET) perfusion imaging and pharmacokinetic modeling. British Heart Foundation, PhD scholarship: €135,644.16, 2010

6.4 Projects Funded by Pfizer

Funding or in-kind contributions are indicated

Completed projects

1. **Development of Causal Artificial Intelligence for medical and drug discovery applications (a previously unmet need at Pfizer). (In-kind contributions)**

PI: Won the Big AIDA Idea competition at Pfizer (success rate ~8%). Led the development of Causal Artificial Intelligence methodologies, designing substantive computational models and approaches across multiple domains: Electronic Health Records, clinical data, medical imaging, natural language processing, and structured (tabular) data.

2. **Imaging/Cell Painting project. (In-kind contributions)**

PI: Led the development of novel Causal Artificial Intelligence models to maximise accuracy in drug screening.

3. **Leading the next generation of Causal Artificial Intelligence for structured data at Pfizer (e.g., Electronic Health Record data, EHR). (In-kind contributions – 25% FTE)**

PI: Led the design, development, evaluation and scaling of causal discovery and inference methods for large-scale data.

4. **Leading the next generation of Causal Artificial Intelligence for unstructured data at Pfizer (biomedical images, transcriptomics, genomics, text). (In-kind contributions – 25% FTE)**

PI: Led the design, development and evaluation of novel generative Causal Artificial Intelligence models at Pfizer, from drug discovery to clinical trials.

5. **ResApp/Voahh study (Total investment: approximately 180,00,000.00 A\$).**

PI: Led, coordinated and contributed to a 10-person team at Pfizer for the delivery of the ResApp/Voahh project. The project involved audio signal processing and Artificial Intelligence.

6. **Study on Primary Immunodeficiencies (Budget: € 46,263.74). (In-kind contributions)**

PI: Led the development of novel Artificial Intelligence (deep learning) algorithms to identify patients with primary immunodeficiencies who a) are at risk and b) have been misdiagnosed (due to health inequities). Led the preparation of papers for high-impact publications and conferences.

7. **Zavicefta drug study (In-kind contributions)**

PI: Investigated data on Zavicefta and other ICU drugs, identifying patient profiles that could derive additional benefit from this drug. A cohort of ~10,000 patients (Premier database) was identified for the development of Artificial Intelligence models that automatically identify suitable profiles. Led a team of 10-15 people.

8. Internal Medicine Therapeutic Area. Internship programme on Twitter data analysis using NLP and Artificial Intelligence techniques (In-kind contributions)

PI: The project involves the extraction and processing of Twitter data, generation of embeddings, word-cluster analysis and descriptive statistics, laying the groundwork for sentiment analysis with NLP.

9. Artificial Intelligence expert at the Tech Club of the Pfizer Center for Digital Innovation in Greece (In-kind contributions)

Led discussions on Data Science and Artificial Intelligence topics (medical imaging, machine learning, NLP, etc.) at the Center for Digital Innovation. Coordinating a group of 70-80 people.

7. Publications

7.1 Journal Articles

Impact Factor (IF) is provided

1. **Papanastasiou G**, Scutari M, Tachdjian R, et al. Large scale causal modeling to identify adults at risk for combined and common variable immunodeficiencies. npj Digital Medicine (Nature portfolio), 2025, (IF:15.10).
2. Ankolekar A, et al. Advancing breast, lung and prostate cancer research with federated learning. A systematic review. npj Digital Medicine (Nature portfolio), 2025, (IF:15.10). (supervising/last author)
3. Suckacki KJ, Tavares AAS, Mattiucci D, Scheller EL, **Papanastasiou G**, et al: Bone marrow adipose tissue is a unique adipose subtype with distinct roles in systemic glucose homeostasis. Nature Communications (Nature portfolio), 2020, 11:3097 (IF:17.69).
4. **Papanastasiou G**, et al. Is attention all you need in medical image analysis? A review. IEEE Journal of Biomedical Health Informatics, 2024 (IF: 7.70).
5. **Papanastasiou G**, Sanchez PP, Christodoulidis A, Yang G, Pinaya WHL. Confounder-aware foundation modeling for accurate phenotype profiling in cell imaging. npj Imaging (Nature portfolio), 2025 (IF: to be released).
6. **Papanastasiou G**, Yang G, Fotiadis DI, et al. Large-scale deep learning analysis to identify adult patients at risk for combined and common variable immunodeficiencies. Communications Medicine (Nature portfolio), 2023, 3, 189 (IF:6.30).
7. Xu W, Mesa-Eguiagaray I, Morris DM, Wang C, Gray C, Sjöström S, **Papanastasiou G**, et al. Deep learning and genome-wide association meta-analyses of bone marrow adiposity in the UK Biobank. Nature Communications (Nature portfolio), 2025 (IF:17.69).
8. Xu W, Mesa-Eguiagaray I, Morris DM, Wang C, Gray C, Sjöström S, **Papanastasiou G**, et al. Clinical implications of bone marrow adiposity identified using deep learning, phenome-wide association, and Mendelian randomization in the UK Biobank. Nature Communications (Nature portfolio), 2025 (IF:17.69).
9. Zhang S, Nan Y, Fang Y, Wang S, Liu Y, **Papanastasiou G**, et al. Dynamical multi-order responses and global semantic-infused adversarial learning: A robust airway segmentation method. Medical Image Analysis, 2025 (IF: 13.83).
10. Wang C, Yang G, **Papanastasiou G**, Tsaftaris SA, et al: DicycleGAN: Deformation invariant cycle-consistency for robust cross-domain medical image synthesis. Information Fusion, 2020 (IF: 17.56).
11. Nan Y, Zhou H, Xing X, **Papanastasiou G**, Zhu L, Gao Z, Frangi AF, Yang G. Revisiting medical

- image retrieval via knowledge consolidation. *Medical Image Analysis*. 2025, 102: 103553 (**IF: 13.83**).
12. Jing P, Lee K, Zhang Z, Zhou H, Yuan Z, Gao Z, Zhu L, **Papanastasiou G**, Fang Y, Yang G. Reason Like a Radiologist: Chain-of-Thought and Reinforcement Learning for Verifiable Report Generation. *Medical Image Analysis*. 2025 (**IF: 13.83**).
 13. Chartsias A, Joyce T, **Papanastasiou G**, Semple SI, Newby DE, Williams MC, Dharmakumar R, Tsaftaris SA: Disentangled representation learning in cardiac image analysis. *Medical Image Analysis*. 2019, 58: 101535 (**IF: 13.83**).
 14. **Papanastasiou G**, Rodrigues MA, Wang C, et al: Pharmacokinetic modelling for the simultaneous assessment of perfusion and ¹⁸F-flutemetamol uptake in cerebral amyloid angiopathy using a reduced PET-MR acquisition time: proof of concept. *NeuroImage*, 2021 (**IF: 7.40**).
 15. Xing X, **Papanastasiou G**, Walsh S, Guang Yang G. Less is More: Synthesizing Annotated CT Images with Limited Manual Segmentation. *IEEE Transactions in Medical Imaging*, 2023 (**IF: 10.05**).
 16. Chartsias A, **Papanastasiou G**, Wang C, Semple SI, Newby DE, Dharmakumar R, Tsaftaris SA: Disentangle, align and fuse for multimodal and zero-shot image segmentation. *IEEE Transactions in Medical Imaging*, 2020 (**IF: 10.05**).
 17. **Papanastasiou G**, Williams MC, Dweck MR, Alam S, Cooper A, Mirsadraee S, Newby DE, Semple SIK: Quantitative assessment of myocardial blood flow in coronary artery disease by cardiovascular magnetic resonance: comparison of Fermi and distributed parameter modeling against invasive methods. *J Cardiovasc Magn Reson*, 2016, 18:57 (**IF: 5.36**).
 18. Spath NB, Singh T, **Papanastasiou G**, Kershaw L, Baker AH, et al: Manganese-enhanced Magnetic Resonance Imaging in Dilated cardiomyopathy and Hypertrophic cardiomyopathy. *European Heart Journal: CVI*, 2020 (**IF: 9.13**).
 19. Wang C, Yang G, **Papanastasiou G**, Zhang H, Rodrigues JJPC, Hugo Costa de Albuquerque V: Industrial Cyber-Physical Systems-based Cloud IoT Edge for Knowledge Distillation. *IEEE Transactions on Industrial Informatics*, 2020 (**IF: 10.21**).
 20. **Papanastasiou G**, Williams MC, Dweck MR, Mirsadraee S, Weir N, Fletcher A, Lucatelli C, Patel D, van Beek EJR, Newby ED, Semple SIK: Multimodality quantitative assessments of myocardial perfusion using dynamic contrast enhanced magnetic resonance and ¹⁵O-labelled water positron emission tomography imaging. *IEEE Transactions on Radiation and Plasma Medical Sciences*, 2018, 2(3):259-271 (**IF: 4.95**).
 21. **Papanastasiou G**, Williams MC, Kershaw LE, Dweck MR, Alam S, Mirsadraee S, Connell M, Gray C, MacGillivray T, Newby DE, Semple SIK: Measurement of myocardial blood flow by magnetic

resonance perfusion imaging. Comparison of distributed parameter and Fermi models with single and dual bolus. *J Cardiovasc Magn Reson*, 2015, 17:17 (IF:5.36).

22. Singh T, Joshi S, Meah MN, Spath NB, **Papanastasiou G**, et al: Repeatability and Reproducibility of Cardiac Manganese-Enhanced Magnetic Resonance Imaging. *Scientific Reports*, 2023 (IF: 4.38).
23. **Papanastasiou G***, Kuhn J*, Tai CW, et al: Tri-Modal Imaging of Gold-Dotted Magnetic Nanoparticles for Magnetic Resonance Imaging, Computed Tomography and Intravascular Ultrasound: An In Vitro Study. *Nanomedicine*, 2020. * Sharing first co-authorship (IF: 4.72).
24. Hindel S, **Papanastasiou G**, Wust P, Maaß M, Sohner A, *Lüdemann L*: Evaluation of Pharmacokinetic Models for Perfusion Imaging with Dynamic Contrast-Enhanced Magnetic Resonance Imaging in Porcine Skeletal Muscle Using Low-Molecular-Weight Contrast Agents. *Magn Reson Med*, 2018, 79(6): 3154-3162 (IF:4.66).
25. Wang C, Dong S, Shao X, **Papanastasiou G**, Zhang H, Yang G: SaliencyGAN: Deep learning semi-supervised Salient Object Detection in the Fog of IoT. *IEEE Transactions on Industrial Informatics*, 2019. (IF: 10.21).
26. Spath NB, Lilburn DML, Gray GA, Le Page LM, **Papanastasiou G**, Lennen RJ, Janiczek RL, Dweck MR, Newby DE, Yang PC, Jansen MA, Semple SI. Manganese-enhanced T1 mapping in the myocardium of normal and infarcted hearts. *Contr Med & Molec Imag*, 2018, 1:1-13 (IF: 3.01).
27. Csincsik L, MacGillivray TJ, Flynn E, Pellegrini E, **Papanastasiou G**, Barzegar-Befroei N, Csutak A, Bird AC, Ritchie C, Peto T, Lengyel I: Peripheral Retinal Imaging Biomarkers for Alzheimer's disease: a pilot study. *Ophthalmic Res*, 2018, 59(4):182-192 (IF: 2.00).
28. Prokopiou D, Pissas M, Fibbi G, Margheri F, Kalska-Szostko B, **Papanastasiou G**, et al: Coated dependent cytotoxicity of magnetic nanoparticles: Synthesis, characterization and theranostic response. *Toxicology in Vitro*, 2021 (IF: 2.90).
29. Spath NB, **Papanastasiou G**, Singh T, Baker AH, Janiczek RL, et al: Assessment of Stunned and Viable Myocardium Using Manganese-Enhanced Magnetic Resonance Imaging. *Open Heart*, 2021 (IF: 2.80).
30. Stavropoulou A, Efthimiadou EK, Sakellis E, Boukos N, **Papanastasiou G**, et al: Core-Shell Au/Pt nanoparticles as a potential drug delivery system enhancing the optical and anticancer activity, coated with a new drug to target glioblastoma. *Colloids and Surfaces B: Biointerfaces*, 2022 (IF: 5.26).
31. Wang C, Yang G, **Papanastasiou G**. Unsupervised image registration towards enhancing performance and explainability in cardiac and brain image analysis. *Sensors*, 2022 (IF: 3.85).
32. **Papanastasiou G**, García Seco de Herrera A, Wang C, et al. Focus on machine learning in

medical imaging. *Physics in Medicine and Biology*, 2023 (IF: 3.30).

33. Morris D, Wang C, **Papanastasiou G**, et al. A novel deep learning method for large-scale analysis of bone marrow adiposity using UK Biobank Dixon MRI data. *Computational and Structural Biotechnology journal*, 2024 (IF: 6.00).
34. Voutouri C, Englezos D, Zamboglou C, Strouthos I, **Papanastasiou G**, Stylianopoulos T. A convolutional attention model for predicting response to chemo-immunotherapy from ultrasound elastography in mouse tumor models. *Communications Medicine*, 2024 (by Nature Portfolio), (IF:6.30).
35. Xing X, Murdoch S, Tang C, **Papanastasiou G**, Jan Cross-Zamirski, Yunzhe Guo, Xianglu Xiao, Carola-Bibiane Schönlieb, Yinhai Wang, Guang Yang. Can generative AI replace immunofluorescent staining processes? A comparison study of synthetically generated cellpainting images from brightfield. *Computers in Biology and Medicine*, 2024 (IF:7.00).
36. Huang G, Li Y, Jameel S, Long Y, **Papanastasiou G**. From explainable to interpretable deep learning for natural language processing in healthcare: How far from reality? *Computational and Structural Biotechnology journal*, 2023 (IF: 6.00).
37. Wang C, Zhang H, **Papanastasiou G**, Yang G. Advances in machine learning methods facilitating collaborative image-based decision making for neuroscience. *Frontiers Computational Neuroscience*, 2023 (IF: 2.1).
38. Xing X, Tang C, Murdoch S, **Papanastasiou G**, et al. Artificial Immunofluorescence in a Flash: Rapid Synthetic Imaging from Brightfield Through Residual Diffusion. *Neurocomputing*, 2024 (IF: 5.5).
39. Yang G, Zhang J, **Papanastasiou G**, Wang G, Tao D. Emerging Horizons: The Rise of Large Language Models and Cross-Modal Generative AI. *IEEE Transactions on Big Data*, 2025 (IF: 5.7).
40. Nikolopoulou SG, Kalska-Szostko B, Basa A, **Papanastasiou G**, et al. Hybrid silver–iron oxide nanoflowers: morphological tailoring, application as CT agents, and exploitation of induced apoptosis in glioblastoma treatment. *Materials Advances*, 2025 (IF: 4.7).
41. Sakalis V, OPTIMA Consortium*. AGREE II Quality Assessment of National and International Clinical Practice Guidelines on Prostate Cancer Management by the OPTIMA Consortium. *European Urology Open Science*, 2024 (IF: 3.2) (*authored as member of OPTIMA Consortium)
42. Barclay NL, OPTIMA Consortium*. Trends in incidence, prevalence, and survival of breast cancer in the United Kingdom from 2000 to 2021. *Scientific Reports*, 2024 (IF: 4.38) (*authored as member of OPTIMA Consortium)
43. Tsampras T, Karamanidou T, **Papanastasiou G**, Stavropoulos TG. Deep learning for cardiac imaging: focus on myocardial diseases, a narrative review. *Hellenic Journal of Cardiology*, 2024 (IF: 3.0).
44. Naidu SB, OPTIMA Consortium*. AGREE-II appraisal of lung cancer management clinical practice

guidelines by the OPTIMA consortium. Lung cancer, 2025 (**IF: 4.40**) (*authored as member of OPTIMA Consortium)

45. Mao Y, Li HB, Pang W, **Papanastasiou G**, Yang G, Mohammadipasand E, Harrison-Drummond T, Wang C. SeLoRA: Self-expanding LoRA for high-quality and efficient medical image synthesis. *Expert Systems with Applications*, 314, 2026 (**IF: 7.5**).
46. Deng D, Zhu P, Qu X, Li H, Xue X, Liu X, Gao Z, Zhang H, Qin H, Lu Y, Feng Y, Zeng M, Chen S, Li X, Zhou Y, Liu F, Gao H, Zheng W, Zhang C, Xu X, Chen W, Yi D, **Papanastasiou G**, Kongto Hau W, Yang G, Zhang Z. Non-invasive assessment of microcirculatory resistance by coronary computed tomography angiography. *EuroIntervention*, 2026 (**IF: 9.5**).
47. Abdollahyan M, et al. PIONEER consortium, OPTIMA consortium. Multimodal AI-driven analysis in breast and lung cancer: insights from the OPTIMA prototyping workshop. *BMC Proceedings*, 2026 (**IF: 1.91**).
48. Panayides AS, Chen H, Filipovic ND, Geroski T, Hou J, Lekadir K, Marias K, Matsopoulos GK, **Papanastasiou G**, et al. Position Paper: Artificial Intelligence in Medical Image Analysis: Advances, Clinical Translation, and Emerging Frontiers. *IEEE JBHI*, 2026 (**IF: 7.7**).
49. Gao Y, Marshall D, Xing X, Ning J, Dai C, **Papanastasiou G**, Yang G, Komorowski M. Anatomy-Guided Radiology Report Generation With Pathology-Aware Regional Prompts. *IEEE Open Journal of Engineering in Medicine and Biology*, 2026 (**IF: 2.9**).

7.2 Full Papers in International Conferences

50. Melistas T, Spyrou N, Gkouti N, Sanchez P, Vlontzos A, **Papanastasiou G**, Tsaftaris SA. Benchmarking counterfactual image generation (NeurIPS 2024)
51. Melistas T, Machlanski D, Butler K, Korakitis A, Spyrou N, Vlontzos A, Panagakis Y, Tsaftaris SA, **Papanastasiou G**. Identifiable estimation of causal concept effects under visual latent confounding. *ICLR 2026 Workshop on Unifying Concept Representation Learning (ICLR 2026)*
52. Mao Y, et al. Data-Efficient Medical Segmentation Through Active Knowledge Distillation from a Sam Teacher, 2026 IEEE 23rd International Symposium on Biomedical Imaging (ISBI), London, United Kingdom, 2026 (ISBI 2026)
53. Xing X, **Papanastasiou G**, Walsh S, Guang Yang G. You Don't Have to Be Perfect to Be Amazing: Unveil the Mechanism of the Utility of Synthetic Images. *MICCAI 2023. Lecture Notes in Computer Science*. (with oral presentation)
54. Wang C, Guang Yang, **Papanastasiou G**: FIRE: Unsupervised bi-directional inter-modality registration using deep networks. *IEEE CBMS 2021*. (with oral presentation)
55. Jiang H, Chatsias A, **Papanastasiou G**, Zhang X, Dweck M, Semple S, Newby D, Dharmakumar R, Tsaftaris SA: Semi-supervised Pathology Segmentation with Disentangled Representations. *MICCAI 2020 Lima, Peru. Lecture Notes in Computer Science*. (with oral presentation)

56. Wang C, **Papanastasiou G**, Tsaftaris SA, Yang G, Gray CD, Newby D, Macnaught G, MacGillivray T: TPSDicyc: Improved Deformation Invariant Cross-domain Medical Image Synthesis. MICCAI 2019 Shenzhen, China (MLMIR workshop 19). *Lecture Notes in Computer Science*. (with oral presentation)
57. Chartsias A, **Papanastasiou G**, Wang C, Stirrat C, Semple S, Newby D, Dharmakumar R, Tsaftaris SA: Multimodal cardiac segmentation using disentangled representation learning. MICCAI 19 Shenzhen, China (STACOM workshop 19). *Lecture Notes in Computer Science*. (with oral presentation)
58. Chartsias A, Joyce T, **Papanastasiou G**, Semple SI, Newby DE, Williams MC, Dharmakumar R, Tsaftaris SA: Factorised spatial representation learning: application in semi-supervised myocardial segmentation. MICCAI 2018 Granada, Spain. *Lecture Notes in Computer Science*, 11071: 490-498. (with oral presentation)
59. Wang C, MacGillivray T, Macnaught G, **Papanastasiou G**, Newby D: Unsupervised cross-domain medical image synthesis by learning deformation-invariant mapping from unpaired data. MICCAI 2018 Granada, Spain. *Lecture Notes in Computer Science*, 11037: 52-60. (with oral presentation)
60. **Papanastasiou G**, Gonzalez-Castro V, Gray CD, Forsythe RO, Sourgia-Koutraki Y, Mitchard N, Newby DE, Semple SIK: Multidimensional assessments of abdominal aortic aneurysms by magnetic resonance against ultrasound diameter measurements. MIUA 2017 Edinburgh, UK. *Communications in Computer and Information Science (by Springer)*, 723:133-143. (with oral presentation)
61. **Papanastasiou G**, Williams MC, Dweck MR et al: A multimodality assessment of myocardial perfusion quantification using dynamic contrast enhanced magnetic resonance and ¹⁵O-labelled water positron emission tomography imaging. PSMR, 2017, Lisbon, Portugal. (with oral presentation)
62. **Papanastasiou G**, Williams MC, Alam S et al: Assessing the reliability of DP and Fermi estimates in single and dual bolus cardiac MR perfusion imaging. *J Cardio Magn Reson* 2014, **16** (Suppl 1): P347, New Orleans. (with poster presentation)
63. Jacutprakart J, Parrilla FA, Rodolfo C, Arely Aceves C, **Papanastasiou G**, Garcia Seco De Herrera A. NLIP-Essex-ITESM at ImageCLEFcaption 2021 task: Deep learning-based information retrieval and multi-label classification towards improving medical image understanding. ImageCLEFcaption 2021.
64. Jacutprakart J, Savran Kiziltepe R, Gan JQ, **Papanastasiou G**, Seco de Herrera A. Essex-NLIP at MediaEval Predicting MediaMemorability 2020 Task. MediaEval Predicting Media Memorability 2020.

7.3 International Conference Abstracts

65. Knauer N, Taraud M, Christian N, Kotik D, Quaranta M, Kremer A, Hartig M, Bussmann M, **Papanastasiou G**, Prieto-Alhambra D, Tan C, Butler-Ransohoff J-E, Evans-Axelsson S, N'Dow J, Krueger H, Alekseeva O, De Meulder B. OPTIMA: European real-world oncology data and evidence generation platform for improving oncology care in prostate, lung, and breast cancer. ESMO AI and Digital Oncology Congress, 2025 (poster presentation)
66. Knauer N, Taraud M, Christian N, Kotik D, Quaranta M, Kremer A, Hartig M, Bussmann M, **Papanastasiou G**, Prieto-Alhambra D, Tan C, Butler-Ransohoff J-E, Evans-Axelsson S, N'Dow J, Krueger H, Alekseeva O, De Meulder B. 211P OPTIMA: European real-world oncology data and evidence generation platform for improving oncology care in prostate, lung, and breast cancer. ESMO Real World Data and Digital Oncology, 2025 (poster presentation)
67. **Papanastasiou G**, Scutari M, Tachdjian R, et al. Causal modeling in large-scale data to improve identification of adults at risk for combined and common variable immunodeficiencies. IgNS 2024 (poster presentation)
68. Wang C, Lai Y, **Papanastasiou G**, Qi P. Enhancing medical image segmentation via knowledge extraction from a general-purpose large vision model. Advancing Health with AI (Nature conference) (oral presentation)
69. OPTIMA network. OPTIMA: A new research project aiming to improve the treatment of patients with prostate, breast and lung cancer through the use of artificial intelligence. DGHO 2023. (oral presentation)
70. Morris DM, Wang C, **Papanastasiou G**, Gray C, Semple SIK, MacGillivray T, Cawthorn W. Bone Marrow Adipose Tissue Evaluation using Dixon MRI Fat Fraction with Machine Learning Segmentation in the UK Biobank – Initial Validation. ISMRM 2021. (oral presentation)
71. **Papanastasiou G**, Rodrigues M, Wang C, Heurling K, Salman R, Macnaught G: Quantitative assessment of 18F-flutemetamol uptake in cerebral amyloid angiopathy using a reduced PET-MR acquisition time frame. PSMR 2019 Munich, Germany. (with oral presentation)
72. **Papanastasiou G**, Rodrigues M, Wang C, Heurling K, Salman R, Macnaught G: Pharmacokinetic analysis of 18F-flutemetamol uptake in cerebral amyloid angiopathy using PET-MR imaging. PSMR 2019 Munich, Germany. (with poster presentation)
73. Spath NB, **Papanastasiou G**, Singh T, Baker AH, Janiczek R, McCann GP, Dweck MR, Newby DE, Semple SI: Manganese-enhanced T1 mapping to quantify myocardial dysfunction in non-ischaemic cardiomyopathy. ACC 2020. J American College Cardiology 2020, **75(11) (Suppl 1)**: p1567, Chicago. (with poster presentation)
74. **Papanastasiou G**, Ivanov V, Moore Shelley, et al. Improving early diagnosis of primary immunodeficiencies by learning causal clinical history. AMIA 2023 (poster presentation)

75. **Papanastasiou G**, Yang G, Fotiadis D et al. Large-scale deep learning analysis for the early diagnosis of primary immunodeficiencies. AMIA 2023 (oral presentation)
76. Morris DM, Wang C, **Papanastasiou G**, Gray C, et al. A novel deep learning method for large-scale analysis of bone marrow adiposity in the UK Biobank. The International Bone Marrow Adiposity Society. Athens 2022. (oral presentation)
77. Morris DM, Wang C, **Papanastasiou G**, Gray C, et al. A novel deep learning method for large-scale analysis of bone marrow adiposity in the UK Biobank: validation and new insights for human health. Adipose Tissue Discussion Group Meeting (ATDG). Edinburgh 2021. (oral presentation)
78. Spath NB, **Papanastasiou G**, Singh T, Gulsin G, McCann GP, Dweck MR, Baker AH, Newby DE, Semple SI. Manganese-enhanced T1 mapping to quantify myocardial dysfunction in non-ischaemic cardiomyopathy. SCMR 2020. (oral presentation)
79. Spath NB, **Papanastasiou G**, Singh T, Gulsin G, McCann GP, Dweck MR, Baker AH, Newby DE, Semple SI. Manganese-enhanced MRI in acute myocardial infarction. SCMR 2020.
80. **Papanastasiou G**, Rodrigues M, Salman R, Macnaught G: Quantitative analysis of ¹⁸F-flutemetamol uptake in cerebral amyloid angiopathy using hybrid PET-MR imaging. ECCB 2018.
81. Spath NB, **Papanastasiou G**, Singh T, Baker AH, Janiczek R, McCann GP, Dweck MR, Newby DE, Semple SI. Manganese-Enhanced Magnetic Resonance Imaging to assess myocardial calcium handling to directly visualise myocardium viability. **EMIM 2020**.
82. Chartsias A, Joyce T, **Papanastasiou G**, Semple SI, Williams MC, Dharmakumar R, Newby DE, Tsaftaris SA: Doing more with less: semi-supervised cardiac segmentation with a fraction of labeled images. SCMR, 2019. (oral presentation)
83. Hindel S, **Papanastasiou G**, Wust P, Maaß M, et al: Evaluation of Pharmacokinetic Models for Perfusion Imaging with Dynamic Contrast-Enhanced Magnetic Resonance Imaging in Porcine Skeletal Muscle Using Low-Molecular-Weight Contrast Agents. ISMRM, 2018, Paris, France (oral presentation).
84. Csincsik L, Flynn E, Pellegrini E, **Papanastasiou G**, et al: Assessing retinal vascular biomarkers for Alzheimer's disease using ultra-widefield imaging (UWFI). ARVO, 2017, Baltimore, Maryland, USA. (oral presentation)
85. Csincsik L, Flynn E, Pellegrini E, **Papanastasiou G**, et al: Retinal vascular parameter assessment in Alzheimer's disease using ultra-widefield imaging. ARVO, 2017, Baltimore, Maryland, USA.
86. Figueora J, Gray C, **Papanastasiou G**, et al: Towards the development of non-invasive measures of breast cancer risk: image analysis of digital breast tomosynthesis mammograms and tissue lobule content. EMIM 2017, Cologne, Germany.
87. **Papanastasiou G**, Williams MC, Dweck MR et al: Diagnostic performance of myocardial blood flow quantification in coronary artery disease by magnetic resonance. *Suppl* in the 'Heart' journal

and oral presentation in BSCI/BSCCT, 2016, Birmingham, UK. (oral presentation)

88. **Papanastasiou G**, Williams MC, Dweck M, et al: Comparison of distributed parameter and Fermi modeling of cardiac MR perfusion with CT perfusion in coronary artery disease versus invasive coronary angiography. Highly rated in ISMRM-ESMRMB Joint Annual Meeting Proceedings, 2014, Milan, Italy and Oral presentation in ISMRM, British Chapter, 2014, Edinburgh, UK. (oral presentation)
89. **Papanastasiou G**, Kershaw LE, Williams MC et al: A multimodality cross-validation study of cardiac perfusion using MR and CT. ISMRM 21st Annual Meeting Proceedings, 2013, Salt Lake City, UTAH, USA.
90. Przybylski A, van Beek E, Dhaliwal K, Sheikh A, Salimian A, Seth S, **Papanastasiou G**, et al. Stratification of Fibrotic Lung Disease: Integration of Molecular Endotyping and Quantitative CT via Machine Learning. Futuristic Medicine symposium, Royal College of Physicians Edinburgh, 2019.

7.4 Book Chapters

91. **Papanastasiou G**, Markousis-Mavrogenis G, Mavrogeni SI. Cardiovascular Imaging and Image Analysis. Cardiovascular Imaging and Analysis. CRC Press (by Taylor & Francis Group)
92. Xing X, **Papanastasiou G**, Diaz O, et al. Generating Synthetic Data in Cancer Research. Trustworthy AI in Cancer Imaging Research Book (by Springer Nature).

7.5 Preprints (arXiv, bioRxiv, medRxiv, Research Square)

93. Vlontzos A, **Papanastasiou G**, Kainz B, Tsaftaris S. From Training to Deployment: Post-Hoc Causal Feature Identification via Sensitivity Ratios. <https://arxiv.org/abs/2607.25546>
94. Vlontzos A, **Papanastasiou G**, Kainz B, Tsaftaris S. Entangled by Design: Spurious Intra-Variable Signal Routing in Tabular In-Context Learners. <https://arxiv.org/abs/2607.25532>
95. Jing P, Lee K, Zhang Z, Zhou H, Yuan Z, Gao Z, Zhu L, **Papanastasiou G**, Fang Y, Yang G. Reason Like a Radiologist: Chain-of-Thought and Reinforcement Learning for Verifiable Report Generation. <https://arxiv.org/abs/2504.18453>
96. Qi P, Qu W, Yao T, Ma H, Wintle D, Lai Y, **Papanastasiou G**, Wang C. A Novel Coronary Artery Registration Method Based on Super-pixel Particle Swarm Optimization. <https://arxiv.org/abs/2505.24351>
97. Mao Y, Li H, Lai Y, **Papanastasiou G**, Qi P, Yang Y, Wang C. Semi-Supervised Medical Image Segmentation via Knowledge Mining from Large Models. <https://arxiv.org/pdf/2503.06816>
98. Spyrou N, Vlontzos A, Pegios P, Melistas T, Gkouti N, Panagakakis Y, **Papanastasiou G**, Tsaftaris SA. Causally Steered Diffusion for Automated Video Counterfactual Generation. <https://arxiv.org/pdf/2506.14404>

99. Xu W, Mesa-Eguiagaray I, Morris DM, Wang C, Gray C, Sjöström S, **Papanastasiou G**, et al. Clinical implications of bone marrow adiposity identified using deep learning, phenome-wide association, and Mendelian randomization in the UK Biobank. OSFpreprints
100. **Papanastasiou G**, Yang G, Fotiadis D et al. Large-scale deep learning analysis for the early diagnosis of primary immunodeficiencies. Research square. <https://europepmc.org/article/ppr/ppr589818>
101. **Papanastasiou G**, Sanchez PP, Christodoulidis A, Yang G, Pinaya WHL. Confounder-aware foundation modeling for accurate phenotype profiling in cell imaging. <https://www.biorxiv.org/content/10.1101/2024.12.23.630105v1.abstract>
102. Morris DM, Wang C, **Papanastasiou G**, et al. A novel deep learning method for large-scale analysis of bone marrow adiposity using UK Biobank Dixon MRI data. medRxiv; 2022. DOI: 10.1101/2022.12.06.22283151
103. **Papanastasiou G**, Scutari M, Tachdjian R, et al. Causal modeling in large-scale data to improve identification of adults at risk for combined and common variable immunodeficiencies. <https://www.medrxiv.org/content/10.1101/2024.08.08.24311672v1>
104. Ankolekar A, Boie S, Abdollahyan M, Gadaleta E, Hasheminasab SA, Yang G, Beauville C, Dikaïos N, Kastis GA, Bussmann M, Khalid S, Kruger H, Lambin P, **Papanastasiou G**. Advancing oncology with federated learning: transcending boundaries in breast, lung, and prostate cancer. A systematic review. <https://www.medrxiv.org/content/10.1101/2024.08.08.24311681v1>
105. Nan Y, Zhou H, Xing X, **Papanastasiou G**, Zhu L, Gao Z, Frangi AF, Yang G. Revisiting medical image retrieval via knowledge consolidation. <https://arxiv.org/abs/2503.09370>
106. Gao Y, Marshall D, Xing X, Ning J, **Papanastasiou G**, Yang G, Komorowski M. Anatomy-Guided Radiology Report Generation with Pathology-Aware Regional Prompts. <https://arxiv.org/abs/2411.10789>
107. Xing X, Tang C, Murdoch S, **Papanastasiou G**, et al. Artificial Immunofluorescence in a Flash: Rapid Synthetic Imaging from Brightfield Through Residual Diffusion. <https://arxiv.org/abs/2407.17882>
108. Xing X, Murdoch S, Tang C, **Papanastasiou G**, Jan Cross-Zamirski, Yunzhe Guo, Xianglu Xiao, Carola-Bibiane Schönlieb, Yinhai Wang, Guang Yang. Can generative AI replace immunofluorescent staining processes? A comparison study of synthetically generated cellpainting images from brightfield. <https://arxiv.org/abs/2407.09507>
109. Englezos D, Voutouri C, Zamboglou C, Strouthos I, **Papanastasiou G**, Stylianopoulos T. A convolutional attention model for predicting response to chemo-immunotherapy from ultrasound elastography in mouse tumor models. <https://www.researchsquare.com/article/rs-3384852/v1>
110. **Papanastasiou G**, et al. Is attention all you need in medical image analysis? A review.

<https://arxiv.org/abs/2307.12775>

111. Xing X, **Papanastasiou G**, Walsh S, Guang Yang G. You Don't Have to Be Perfect to Be Amazing: Unveil the Mechanism of the Utility of Synthetic Images. <https://arxiv.org/abs/2305.18337>
112. Xing X, **Papanastasiou G**, Walsh S, Guang Yang G. Less is More: Synthesizing Annotated CT Images with Limited Manual Segmentation. <https://arxiv.org/abs/2303.12747>
113. Wang C, **Papanastasiou G**. Explainable unsupervised multi-modal image registration using deep networks. <https://arxiv.org/abs/2308.01994>
114. Mao Y, Li H, Pang W, **Papanastasiou G**, Yang G, Wang C. SeLoRA: Self-Expanding Low-Rank Adaptation of Latent Diffusion Model for Medical Image Synthesis. <https://arxiv.org/abs/2408.07196>
115. Huang G, Li Y, Jameel S, Long Y, **Papanastasiou G**. From explainable to interpretable deep learning for natural language processing in healthcare: How far from reality? <https://arxiv.org/abs/2403.11894>
116. Suckacki KJ, Tavares AAS, Mattiucci D, Scheller EL, **Papanastasiou G**, et al: Bone marrow adipose tissue is a unique adipose subtype with distinct roles in systemic glucose homeostasis. <https://www.biorxiv.org/content/10.1101/673129v1.abstract>
117. Melistas T, Spyrou N, Gkouti N, Sanchez P, Vlontzos A, **Papanastasiou G**, Tsaftaris SA. Benchmarking counterfactual image generation. arXiv preprint arXiv:2403.20287
118. Wang C, Yang G, **Papanastasiou G**. Unsupervised image registration towards enhancing performance and explainability in cardiac and brain image analysis. <https://arxiv.org/abs/2203.03638>
119. Wang C, **Papanastasiou G**, et al. FIRE: Unsupervised bi-directional inter-modality registration using deep networks. <https://arxiv.org/abs/1907.05062>
120. Jiang H, Chatsias A, **Papanastasiou G**, Zhang X, Dweck M, Semple S, Newby D, Dharmakumar R, Tsaftaris SA: Semi-supervised Pathology Segmentation with Disentangled Representations. <https://arxiv.org/abs/2009.02564>
121. Chatsias A, **Papanastasiou G**, Wang C, Semple SI, Newby DE, Dharmakumar R, Tsaftaris SA: Disentangle, align and fuse for multimodal and zero-shot image segmentation. <https://arxiv.org/abs/1911.04417>
122. Suckacki KJ, Tavares AAS, Mattiucci D, Scheller EL, **Papanastasiou G**, et al: Bone marrow adipose tissue is a unique adipose subtype with distinct roles in systemic glucose homeostasis. <https://www.biorxiv.org/content/10.1101/673129v1>

8. Editorial Roles, Peer Review, Conference Organisation

8.1 Editorial Roles

1. 2022-Today Associate Editor in IEEE JBHI
2. 2026-Today Guest Editor in IEEE Transactions on Biomedical Engineering
3. 2024-2025 Guest Editor in IEEE Transaction on Big Data
4. 2023-Today Editorial Board in Computational and Structural Biotechnology Journal
5. 2020-2021 Guest Editor in Physics in Medicine and Biology
6. 2021-2022 Guest Editor in Sensors
7. 2022-2023 Guest Editor in Frontiers Computational Neuroscience

8.2 Journal Reviewer (selected list)

1. Medical Image Analysis
2. Information Fusion
3. IEEE Transactions on Medical Imaging
4. IEEE Transactions on Neural Networks and Learning Systems
5. Circulation: Cardiovascular Imaging
6. Investigative Radiology
7. Bioinformatics
8. IEEE Transactions on Radiation and Plasma Medical Sciences
9. IEEE Open Journal of Engineering in Medicine and Biology
10. Computational and Structural Biotechnology Journal
11. IEEE Journal of Biomedical and Health Informatics
12. Physics in Medicine and Biology

8.3 Conference Reviewer

1. ICML
2. MICCAI
3. International Society of Magnetic Resonance in Medicine
4. Medical Image Understanding Analysis
5. ISBI

6. European Conference on Computational Biology

7. European Molecular Imaging Meeting

8.4 Conference Organisation

2026, ISBI 2026: <https://biomedicalimaging.org/2026/about/organizing-committee/>

9. Additional Distinctions

9.1 In Research

1. 2026-Present, ELLIS Member (European Laboratory for Learning and Intelligent Systems).
2. 2023-Present, First place in the AIDA Big Idea competition at Pfizer (success rate ~8%) for my Causal AI project
3. 2023-Present, Researcher and Lead Researcher, "Archimedes" Unit, "Athena" Research Center.
4. 2021-Present, Honorary Assistant Professor, University of Essex.
5. 2020-Present, Visiting Researcher, University of Edinburgh.
6. 2017, Finalist, CCP PET-MR UK consortium: financial award for participation in the PSMR school and workshop in Lisbon, Portugal.
7. 2017-2020, Honorary NHS contract for research and non-clinical cover, for clinical research projects (commencing 01/03/2017).
8. 2014, Financial award as a finalist from the BHF Centre of the University of Edinburgh for presenting at the SCMR conference in New Orleans, USA.
9. 2014, Recognised as one of the top early-career researcher presentations at the ISMRM-ESMRMB conference, Milan.
10. 2010, BHF PhD Scholarship

9.2 High-Impact Publications & Authorship Position at Top-Tier Conferences

30 publications in scientific journals with Impact Factor (IF) ≥ 5.0 (IF range: 5.0–17.7), of which 20 with IF ≥ 7.0 .

Of these:

- 6 as first author (npj Digital Medicine IF:15.1 · IEEE JBHI IF:7.7 · NeuroImage IF:7.4 · Communications Medicine IF:6.3 · J Cardiovascular Magnetic Resonance IF:6.10 ×2).
- 1 as senior (last) author (npj Digital Medicine IF:15.1).
- +1 as first author in npj Imaging (Nature portfolio, IF to be released).

8 publications in Nature Portfolio journals (Nature Communications IF:17.7 ×3, npj Digital Medicine IF:15.1 ×2, Communications Medicine IF:6.3 ×2, npj Imaging ×1), of which 3 as first author and 1 as senior author.

Full papers in international conferences – authorship position:

- As first author: MIUA 2017 (Springer) · PSMR 2017 · SCMR 2014 (all 3 with oral/poster presentation).
- As last (senior) author: ICLR 2026 Workshop · NeurIPS 2024 · IEEE CBMS 2021 (oral).
- As 2nd author: MICCAI 2023 (oral).

9.3 Publication Metrics

Google scholar:

https://scholar.google.com/citations?hl=en&user=VPsjPNUAAAAJ&view_op=list_works&sort_by=pubdate

Google scholar citations: 2360, h-index: 23, i10-index: 46

10. Additional Training

- 2017, Attracting ‘Your Own Research Funding: Writing & Applying for Fellowships’, organised by the Institute for Academic Development, University of Edinburgh.
- 2017, 2015, 2013, Good Clinical Practice (GCP) courses.
- 2013, 3rd BHF Fellows' Meeting. Career advice – successful fellowship applications.