Aristeidis Sionakidis, Ph.D.

Research Associate in Machine Learning

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I am a Research Associate in Machine Learning based at the Department of Oncology (Precision Breast Cancer Institute) at the University of Cambridge. My work focuses on the application of multi-modal and multi-omic learning techniques for predicting response and survival in breast cancer treatment. I am interested in interactions between data modalities, data fusion approaches for efficient representation learning, and the interpretability and explainability of model output.

Employment

Research Associate in Machine Learning. 02/2024-Present
University of Cambridge, Department of Oncology, Precision Breast Cancer Institute
Role: Integration of multi-omic, clinical and imaging data in breast cancer using modern machine learning methodologies.

Advisor in Bioinformatics and Data Analysis. 04/2021-04/2022
iGEM Thessaloniki, Greece
Role: Data analysis on Pancreatic Ductal Adenocarcinoma (PDAC) gene expression studies; development of early-diagnosis tools for precision medicine interventions.

Education

Ph.D., University of Edinburgh. MRC DTP in Precision Medicine. 09/2020-03/2024
Thesis: *Integrated analysis of patient gene expression data for Precision Medicine applications in breast and pancreatic cancer.*
Supervisors: Dr. Jonine Figueroa, Dr. Timothy Cannings, Dr. Andrew Sims

M.Sc., University of Glasgow. MSc in Precision Medicine and Pharmacological Innovation. 09/2019-09/2020
Grade: Distinction
Thesis: *Creating a patient-centric educational platform for personalised medicine.*
Supervisor: Prof. Sandosh Padmanabhan

B.Sc., Aristotle University of Thessaloniki. Pharmacy. 09/2013-07/2018
Grade: 8.57; UK equivalent: 1st class
Thesis: *Cloning of IL-2 coding sequence via recombinant DNA technology.*
Supervisor: Prof. Lekothea Papadopoulou

Research Publications

Journal Articles

1. **A. Sionakidis**, P. N. Lalagkas, A. Malousi, and I. S. Vizirianakis, "Identification of diagnostic markers of pancreatic ductal adenocarcinoma using transcriptomic tumour and blood sample data," *Clinical and Translational Discovery*, vol. 3, no. 5, Oct. 2023, ISSN: 2768-0622. DOI: 10.1002/ctd2.248.

2. C. du Toit, T. Q. B. Tran, N. Deo, S. Aryal, S. Lip, R. Sykes, I. Manandhar, **A. Sionakidis**, L. Stevenson, H. Pattnaik, S. Alsanosi, M. Kassi, N. Le, M. Rostron, S. Nichol, A. Aman, F. Nawaz, D. Mehta, R. Tummala, L. McCallum, S. Reddy, S. Visweswaran, R. Kashyap, B. Joe, and S. Padmanabhan, "Survey and Evaluation of Hypertension Machine Learning Research," *Journal of the American Heart Association*, vol. 12, no. 9, May 2023, ISSN: 2047-9980. DOI: 10.1161/jaha.122.027896.

3. **A. Sionakidis**, L. McCallum, and S. Padmanabhan, "Unravelling the tangled web of hypertension and cancer," *Clinical Science*, vol. 135, no. 13, pp. 1609–1625, Jul. 2021, ISSN: 1470-8736. DOI: 10.1042/cs20200307.

Preprints

1. **A. Sionakidis**, T. I. Cannings, J. D. Figueroa, and A. H. Sims, "A novel gene signature to predict response to neoadjuvant chemotherapy and endocrine treatment in estrogen receptor-positive breast cancer patients," Available from Research Square, Apr. 2023. DOI: 10.21203/rs.3.rs-2771576/v1.

Manuscripts in preparation

1. A. Papadimitriou-Tsantarliotou, **A. Sionakidis**, C. I. Papagiannopoulos, C. Avgeros, A. Malousi, A. K. Anagnostopoulos, and I. Vizirianakis, *Uncovering STEAP3 as a Ribosome-Associated Protein during Erythroid Maturation in Murine Erythroleukemia Cells*, 2026.
2. **A. Sionakidis**, K. Pinilla-Alba, J. Abraham, and N. Simidjievski, *Consensus Through Diversity: A Comprehensive Benchmark of Multi-Omic Approaches for Precision Breast Oncology*, 2026.
3. **A. Sionakidis** and N. Simidjievski, *MINGLE (Multi-omic INteGration & anaLysis Environment): a library for automated, interoperable, reproducible multi-omic integration*, 2026.

Presentations

AACR 2022	American Association for Cancer Research (AACR) Annual Meeting 2022 poster, New Orleans
EACR 2022	European Association for Cancer Research (EACR) Annual Congress 2022 poster, Seville
MEG-UK 2022	Molecular Epidemiology Group (MEG)-UK Annual Meeting 2022 poster, Edinburgh
EBCSS 2023	Edinburgh Breast Cancer Society Symposium (EBCSS) 2023 poster, Edinburgh

Awards and Scholarships

09/2021-03/2023	Bodossaki Foundation scholarship for Ph.D. students
10/2021-03/2023	Onassis Foundation scholarship for Ph.D. students
04/2022	Doreen J. Putrah Cancer Research Foundation Scholar-in-Training Award (AACR 2022)
09/2019-09/2020	Bodossaki Foundation scholarship for M.Sc. students
05/2019	Aristotle University of Thessaloniki Excellence Award
03/2017-11/2017	Aristotle University of Thessaloniki undergraduate student scholarship

Active projects

PARTNER	Computational analysis of the multi-modal data from the PARTNER clinical trial. *University of Cambridge*.
SYNERGIA	An international collaboration for a multi-modal breast cancer data repository. *University of Cambridge*.
SUSA	Sustainable Healthcare with Digital Health Data Competence. Tutor/Content developer in "Gene expression, data repositories and standards" and "Data fetching, preprocessing and differential analysis". *Collaboration with Aristotle University of Thessaloniki, Greece*.
OSCC	Prediction of recurrence in Oral Squamous Cell Carcinoma (OSCC) patients using RNA-seq data. *Collaboration with Aristotle University of Thessaloniki, Greece*.
Plasma jet	Meta-analysis of plasma jet treatment transcriptomics in skin cells. *Collaboration with Aristotle University of Thessaloniki, Greece*.

Skills

Data Analysis	Exploratory analysis | data wrangling | hypothesis testing | high-dimensional data | visualization | dynamic report generation
Computational Biology	Bioinformatics | Nextflow | WGS, SNV, CNV, methylation data, RNA differential analysis | network & pathway analysis
Machine Learning	Deep learning with PyTorch, TensorFlow, keras | scikit-learn, caret | multi-omic learning, multi-modal learning, unsupervised learning | pipeline automation
Programming	Python, R | Linux/Bash/UNIX | HTML, CSS, JavaScript | MySQL| Cloud computing (AWS), Hugging Face, MLOps
Typesetting	LaTeX, Markdown
Languages	English, French, Greek

Full list of skills

Certificates

- **Advanced Python for Biologists**. | Edinburgh Genomics
- **Deep Learning in Python track**. | DataCamp
- **Practical Neural Networks & Deep Learning in R**. | Udemy
- **Fundamentals of Accelerated Computing with CUDA Python**. | NVIDIA
- **Statistics for Genomic Data Science**. | Coursera
- Full list of certificates

Teaching & Supervision

2025 **University of Cambridge, Department of Chemical Engineering**
CEBT IA Cell Biology
Undergraduate student supervisions

2025 **Aristotle University of Thessaloniki**
M.Sc. in Precision Medicine - Translational Research and Therapeutics
Lecture: "Bioinformatic tools and applications in -omics technologies"

2024 **Aristotle University of Thessaloniki, Center for Education and Lifelong Learning**
R4LIFE: R programming skills for Life Scientists
Lecture: "Analysis of Genomic Data"

Volunteering

2015-2018 **Member at ATP (Aristotle Team of Pharmacy, NGO)**. Thessaloniki
Managerial and soft skills acquired through organizing academic seminars, conferences and social events

References

Available upon request.