London, UK | Google Scholar | GitHub | LinkedIn

Amaya **Gallagher-Syed**

Machine Learning Scientist | BioAI

Summary

I'm a computer scientist/biologist with 4 years experience developing deep learning models for biological and biomedical data, with expertise in computer vision and multimodal fusion algorithms for histopathology and transcriptomic data of autoimmune diseases.

Skills

Deep Learning
- Computational pathology
- Multiple Instance Learning
- Graph Neural Networks
- Transformers
- Multimodal fusion
- Foundation Models

Python
- PyTorch
- PyTorch Geometric/DGL

Version control: Git, GitHub

Cloud: SSH HPC/distributed computing

Biology
- Transcriptomics (bulk, single-cell, spatial)
- Immunology
- Systems biology

Languages: English (native), French (native), Spanish (native)

Academic services

- Reviewer: NeurIPS 2025, TMLR, CVPR 2025, ICLR 2025, NeurIPS 2024, MICCAI 2023
- Open-source contributor to the Graph Structure Learning Benchmark (NeurIPS 2023)
- Organiser: DERI Lunch & Learn Seminar
- Co-organiser: Responsible AI Workshop

Experience

Wellcome Trust funded PhD student - AI for Biomedicine

Queen Mary University of London **2021.10–present**

◇ Thesis topic: *Deep learning methods for biomarker discovery and stratification of Immune Mediated Inflammatory Diseases.*

My research focuses on developing deep learning pipelines adapted to integrating imaging and "omics" data, to extract disease signatures and biomarkers for patient stratification and disease understanding.

◇ Supervisors: Prof. Michael R. Barnes · Bioinformatician | Prof. Myles J. Lewis · Rheumatologist | Prof. Gregory Slabaugh · Computer Scientist

Grant Applications

EULAR Research Methods, Capabilities, and Processes Grant **2024**

◇ Title: Integrating histopathology and spatial transcriptomics for the identification of pre-lymphomatous lesions with Artificial Intelligence. Co-applicant. Main applicant: Dr. Elena Pontarini. Budget: 50k euros. *Not awarded*.

Teaching Assistant

Queen Mary University of London **2021–2023**

◇ Statistics for Artificial Intelligence and Data Science
◇ Post Genomics Bioinformatics

Education

Wellcome Trust funded MRes - AI for Biomedicine

Queen Mary University of London **2020–2021**

◇ Thesis title: *Deep learning image classification of early Rheumatoid Arthritis synovial histology by pathotypes.*
◇ Modules: Intro to and Advanced Natural Language Processing, Bayesian Decision and Risk Analysis, Optimisation.
◇ Grade: Distinction

MSc in Mathematical Sciences

Queen Mary University of London **2019–2020**

◇ Thesis title: *Applying machine learning techniques to the gene expression data of early Rheumatoid Arthritis patients to distinguish between treatment responders and non-responders.*
◇ Modules: Intro to and Advanced Machine Learning, Scientific Computing, Graphs and Networks, Times Series.
◇ Grade: Distinction

Licentiate in Computational Biology

Universidad de Buenos Aires **2012–2019**

◇ Modules: 7 year full-time degree covering biology, chemistry, physics, mathematics, statistics and programming.
◇ Grade: 8.3/10 (Honours)

Selected Publications

◇ A. Wenteler, M. Occhetta, N. Branson, M. Huebner, V. Curean, W. Dee, W. Connell, A. Hawkins-Hooker, P. Chung, Y. Ektefaie, C. M. Cordova and **A. Gallagher-Syed** **PertEval-scFM: Benchmarking Single-Cell Foundation Models for Perturbation Effect Prediction**, *Under Review at ICML (A, WA, WA, WR)* (2025).

◇ **A. Gallagher-Syed**, H. Senior, O. Alwazzan, E. Pontarini, M. Bombardieri, C. Pitzalis, M. J. Lewis, M. R. Barnes, L. Rossi and G. Slabaugh **BioX-CPath: Biologically-driven Explainable Diagnostics for Multistain IHC Computational Pathology**, *IEEE/CVF Conference on Computer Vision and Pattern Recognition* (2025).

◇ O. Alwazzan, **A. Gallagher-Syed**, T. Millner, S. Brandner, I. Patras, S. Marino and G. Slabaugh **Multimodal Outer Arithmetic Block Dual Fusion of Whole Slide Images and Omics Data for Precision Oncology**, *Under review at Transactions in Medical Imaging* (2024).

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Awards

- Wellcome Trust PhD Studentship in Science
- Top Reviewer NeurIPS 2024 (4%)
- Best poster award William Harvey Research Institute PhD Symposium 2024

Selected Publications

- **A. Gallagher-Syed**, E. Pontarini, M. J. Lewis, M. R. Barnes and G. Slabaugh. **Going Beyond H&E and Oncology: How Do Histopathology Foundation Models Perform for Multi-stain IHC and Immunology?**, *NeurIPS AIM-FM Workshop* (2024).

- **Amaya Gallagher-Syed**, Luca Rossi, Felice Rivellesse, Costantino Pitzalis, Myles J. Lewis, Michael Barnes, and Gregory Slabaugh. **Multi-stain self-attention graph multiple instance learning pipeline for histopathology Whole Slide Images**, 34^{th} *British Machine Vision Conference* (2023).

- L Basseto, J Duquesne, V Bouget, M Barnes, E Pontarini, **A Gallagher-Syed**, M Bombardieri, B Fisher, S Nayar, C Adam, T Lazure, X Mariette, S Bitoun. OP0232. **Deep Learning accurately predicts Focus Score and diagnosis of primary Sjogren Syndrome using labial salivary gland biopsies**, *Annals of the Rheumatic Diseases*, 82:152-153 (2023).

- **Amaya Gallagher-Syed**, Abbas Khan, Felice Rivellese, Costantino Pitzalis, Myles J. Lewis, Gregory Slabaugh, Michael R. Barnes. **Automated segmentation of rheumatoid arthritis immunohistochemistry stained synovial tissue**, 27^{th} *Conference on Medical Image Understanding and Analysis* (2023).