Max Gamill, Ph.D.

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Contact

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Max Gamill 🔗   Max-Gamill ⌗

Key Achievements

- Awarded the 2023 Sheffield FAIR software development award.
- Invited speaker at the BIRS DNA topology conference in Canada for my novel image analysis pipeline.
- First author Nature Communications journal paper.
- Achieved the highest client satisfaction score of 79% in my analytics team at IBM.

Key Skills

Production Software Development

| FAIR Software Development | | End-to-end Python Pipelines | | Milestone Planning | Version Control | Documentation (Sphinx, GitHub Pages) | Containerisation (Docker) | Deployment |

Machine & Deep Learning

| Scikit-Image | Scikit-Learn | | Clustering (kNN, DBSCAN, GMM) | TensorFlow | Data Version Control | Albumentations | | Segmentation Models (U-Net) | | Object Detection Models (YOLOv3, Mask-RCNN) | | Generative Models (CVAE) |

CI/CD & DevOps

| Git Collaboration | GitHub Actions | Test Automation | Tagged Releases | PyTest | Linting | | Hosting Town Halls | | Leading Multi-disciplinary Teams | User Training |

High Performance Computing

| Unix | Environment Management | SLURM and PBS Schedulers | MPI and Multiprocessing Parallelisation | HPC User Support |

Profile

Software developer with 5 years experience collaboratively building, testing, and enhancing research software from computer vision pipelines to Django web apps. These software packages total over $37,000$ downloads and won the 2023 Sheffield FAIR software award. Motivated to drive automation further with a proven track record of developing classical and deep learning computer vision pipelines.

Professional Experience

Imperial College London | 2025 - Present |

HPC and RSE Experience Programme

- Working with Intel to benchmark inference on new hardware with a variety of research-focused deep-learning models.
- Created a Cookiecutter UV template helping initialise new projects with documentation and CI/CD system tests.
- Resolved bash scripting, resource availability, software and parallel processing issues on HPC systems.

University of Sheffield | 2021 - 2025 |

Postgraduate Researcher

- Collaboratively developed classical and machine learning pipelines for image analysis software with $37,000+$ downloads; TopoStats, AFMReader, and Napari-AFMReader.
- Trained and evaluated k-means, DBSCAN, and GMM models to cluster similar DNA shapes within the latent space of a loss-function modified CVAE. The GMM achieved 60% accuracy in a non-discrete classification task.
- Trained U-Net models for segmentation improvements of touching objects, reducing the error of area statistics by $\sim30\%$.
- Validated YOLOv3 and Mask R-CNN models to classify biomolecular structures. Identified a dataset imbalance (70% in class 0 of 8), addressed by developing synthetic data for transfer learning.
- Improved pipeline governance by liaising with Microscopy companies and integrating proprietary file formats, removing bias.
- Guided external stakeholders to contribute and maintain software, helping with lifecycle management, and organised town halls between developers and users to align milestones to user needs.
- Disseminated knowledge via seminars, posters, and software workshops at international conferences (CBIAS, BIRS, I2K).
- First author of a Nature Communications paper - a 14.7 impact-factor journal.

IBM | 2018 - 2019 |

Cognos Analytics Technical Support Analyst

- Resolved 230+ cases spanning general questions, errors, defects, workarounds, and load balancing issues.
- Authored 36 technical documents and 11 corrections.
- Managed 10-20 concurrent cases, prioritising system critical cases.
- Configured minimal test case environments on Unix and Microsoft operating systems.
- Root cause analysis through the investigation of log files.
- Scored the team highest client satisfaction score of 79.