Samuel John Beales - Bioinformatician

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Profile:

Early-career bioinformatician with an MRes in Bioinformatics and Immunobiology and hands-on experience processing and analysing multi-omics datasets using Python, R, and shell scripting. Experienced in building reproducible pipelines for single-cell and bulk RNA-seq data, and motivated to contribute to innovative new research in the DNA Metagenomics field. Strong collaborator with research experience, and a commitment to FAIR data principles. Eager to contribute to pollinator research by developing versatile AI systems and utilising the latest innovations in Deep Learning.

Key Skills:

- Development of bioinformatics workflows and reproducible pipelines (Snakemake, Singularity, Git)
- Programming in Python and R for analysis, visualisation, and quality control
- Data handling and processing of large-scale biological datasets (scRNA-seq, bulk RNA-seq)
- Experience working in Linux environments and with cloud computing (WSL, virtual machines)
- Understanding of genomics, bioinformatics, and machine learning
- Communication and collaboration in interdisciplinary teams.

Education:

September 2022 - July 2023 MRes Bioinformatics and Immunobiology Newcastle University

Relevant Modules:

Bioinformatics for Biomedical Scientists:

- Next generation sequencing (NGS) applications and sequence alignment, alongside handling and analysis of NGS data.
- Running bioinformatics analysis at the Linux command line, and practical approaches to pathway analysis.
- R statistical programming framework and Bioconductor, as well as statistical analysis and visualisation of NGS data using R.
- Best practices for version control software and custom scripting.

Genetics of Common Disease:

- Developed an advanced understanding genetic variation, complex disease, and the correct research strategies for their study. As well as use of computer packages for statistical genetic analysis.

Applied Immunobiology of Human Disease:

- Basic concepts in Immunology, features and mechanisms immunologic tolerance, auto-immunity, and tumour immunity.
- Immunological Biomarkers: role in diagnostics, prognostics and theragnostics.

MRes project and skills:

January – July 2023 Lessons from nature - Using human developmental data to inform haematopoietic organoid design.

- Data handling and processing of large-scale biological datasets.
- Developed expertise in Python, R, and Linux shell scripting for pre-processing, quality control, and differential expression (DE) analysis in a working research environment.
- Built modular and reproducible NGS pipelines using Snakemake and Singularity for scRNA-seq analysis alongside Git version control. Utilizing ML clustering techniques (KNN, k-means, UMAP) for cell type identification.
- Developed deep subject knowledge of genomics and bioinformatics.
- Collaborated with software engineers and experimental biologists to validate computational findings.
- Prepared 7500 word dissertation on work as well as presented results to a group of peers.

2018-2022 BSc (Hons) Biology (Cellular and Molecular) 2:1 University of Huddersfield

Relevant Modules:

- **Mechanisms and Pathology of Cancer and other Chronic Diseases:** Knowledge of the aetiology, pathogenesis, diagnosis and treatment of major chronic diseases focusing on cancer and its therapeutic treatments.
- **Genomics:** Familiarised with High-throughput methods and applications, with detail into technical aspects and practical analysis
- **Research Project, Analysis of the relationships between longevity related genes in C. elegans:** Applied molecular methods and maintained lab environment, as well as writing a comprehensive scientific report on the findings.

2011-2018 St Bede's Catholic School and 6th Form College

A-level: Biology (C), Chemistry (C), Psychology (C), Core Maths (B).

GCSE: 7 GCSEs at A-C: Including Maths and English.

Continued Professional Development:

2023-2024 Further omics, statistics and clinical data in R, University of Glasgow

- Parametric and non-parametric tests, P values, survival curves, and power calculations.
- Custom functions and workflow scripting, visualisation of plots, and normalisation of RNA-seq data in R.
- Identifying and exploring DE signatures, widening my understanding of DE data analysis.
- K-means clustering unsupervised ML and its application in scRNA-seq data.

2024 Artificial Intelligence in Bioinformatics, Taipei Medical University

- The fundamentals of AI and ML, with their application using Weka.
- Further developed interest in ML and desire to learn more about MLOps and ML deployment.

2025 Snakemake basic and advanced tutorials

- Further developed an understanding and confidence applying the breadth and depth of Snakemake features into developing NGS pipelines.

2023-present Personal website and WSL setup for independent projects

- Proactive setup of Windows Subsystem for Linux and shell scripting with Zsh to independently achieve goals.
- Personal projects display deeper interest and enthusiasm for learning and flexibility to work independently.
- Setup Raspberry Pi Zero with external SSH for cloud storage projects.
- My various projects display my commitment to continued professional development and ability to rapidly acquire new skills.

Placement year

September 2020 – August 2021 Lab Analyst, Lonza Group:

- Developed communication skills and worked as part of a multidisciplinary team.
- Worked in a busy microbiology lab, gaining cross-disciplinary collaboration experience.
- Ensured high standards of data accuracy and reproducibility, maintaining regulatory compliance.

Work experience:

October 2024 –Present Microbiology Analyst, Latis

- Practical lab experience performing scientific methods with attention to detail, working to deadlines as an efficient team. Working flexibly and maintaining a positive and supportive attitude.
- Further developed excellent communication skills and honed a team mentality.
- Improved Attention to detail following precise methods with accuracy and reliability.
- Mentored and supervised new members of the laboratory, ensuring their safety and

Positions of responsibility

September 2019-2022 Vice-President, University of Huddersfield Fencing Club:

- Coached and managed weekly fencing sessions to ensure reliable and dependable practice for members, communicated with Students Union and organised club budget to maintain regular stock of functioning equipment for club use.
- Taught and reviewed skills of members, supervising club activities. Prepared course materials for beginner members.

September 2018-2020 Academic Representative University of Huddersfield;

- Worked to improve the quality of student experience, gathering feedback, attending meetings, and filing issues. Communicating effectively with staff and students.

References

Available upon request.