Gabriel-Mateus **Bernardo Harrington**

Research Associate

School of Medicine, Dementia Research Institue

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Experienced and motivated scientist with a strong publication track record. My multidisciplinary skills in both informatics and bench work gives me a unique perspective and has made me highly adaptable.

Professional Overview

Currently a Research Associate bioinformatician at the Dementia Research Institute, Cardiff University centre, working on Alzheimer's disease with a focus towards genomics.

In my current role I proposed, built and maintain a PostgreSQL database of multiple large cohorts spanning over 20 years of data, which has enabled much more efficient and accurate access to this data, facilitating new and ongoing research projects. I have also built several extensible, well-documented pipelines for processing and analysis of data from multiple instruments and assays in a transparent, robust and reliable fashion. Most recently, I have proposed and lead on a push for more reproducible practises in research with colleagues, including the use of version control, project management strategies, containerisation and more. As part of this push I have also been promoting the use of registered reports to counter P-Hacking and HARKing.

My PhD at Keele University was based in the OsKOR group at The RJAH Orthopaedic Hospital and focused on spinal cord injury (SCI). I generated statistical models of SCI using routine haematological data from electronic health records and examined the plasma proteome of human SCI patients to investigate biomarkers of neurological outcomes which is current unpredictable in all but the most severely injured patients. Lab rotations in my first year allowed me develop a range of bench skills, and exposed me to a diverse range of teams and working environments.

Education

Keele University — *Keele*

PhD in Biomedical Engineering — *2018 - 2021*

Lancaster University — *Lancaster*

BSc (Hons) - Biological Sciences - 2:1 — *2013 - 2016*

Awards

DEMON network — *London*

Neurohack 2022 - Winning team — *2022*

Race Against Dementia — *Cranfield University*

Dementia research meets motorsports Innovation Accelerator - Winning team — *2021*

Funding

EPSRC Centre for Doctoral Training in Regenerative Medicine — *Loughborough*

CDT Consumable grant — *2021*

- £5000 awarded

Talks

ISCoS 2021 — *Oswestry*

Proteomic and bioinformatics analyses of plasma from SCI neurological improvers and non-improvers — *2021*

Centre for Doctoral Training Conference, 2021 *Virtual*

Reproducible data analysis *2021*

Centre for Doctoral Training Conference, 2019 *Manchester*

Reproducible Research *2019*

Skills

Bioinformatics

Proteomics, Genomics, High performance cluster computing, SLURM, Electronic Health data

Programming Languages

R, BASH, Python, SQL, Nextflow

Wet Lab work

3D Tissue Culture, Microscopy, Animal handling, Histology

Markup Languages

Markdown, RMarkdown/Quarto, YAML, CSS, HTML, LaTeX

Version Control

Git, GitHub, GitLab

Language

Portuguese

Microsoft Office

Excel, Outlook, OneNote, PowerBI, PowerPoint, Visio, Word

Publications

1. Bernardo Harrington, G. M., Cool, P., Hulme, C., Fisher-Stokes, J., Peffers, M., El Masri, W., Osman, A., Chowdhury, J. R., Kumar, N., Budithi, S., & Wright, K. (2022). *A comprehensive proteomic and bioinformatics analysis of human spinal cord injury plasma identifies proteins associated with the complement cascade and liver function as potential prognostic indicators of neurological outcome* [Preprint]. Bioinformatics. https://doi.org/10.1101/2022.07.12.499696
2. Bernardo Harrington, G. M., Cool, P., Hulme, C., Osman, A., Chowdhury, J., Kumar, N., Budithi, S., & Wright, K. (2020). Routinely measured haematological markers can help to predict AIS scores following spinal cord injury. *Journal of Neurotrauma*. https://doi.org/10.1089/neu.2020.7144
3. Brown, S. J., Harrington, G. M. B., Hulme, C. H., Morris, R., Bennett, A., Tsang, W.-H., Osman, A., Chowdhury, J., Kumar, N., & Wright, K. T. (2019). A preliminary cohort study assessing routine blood analyte levels and neurological outcome after spinal cord injury. *Journal of Neurotrauma*. https://doi.org/10.1089/neu.2019.6495
4. Hulme, C. H., Peffers, M. J., Harrington, G. M. B., Wilson, E., Perry, J., Roberts, S., Gallacher, P., Jermin, P., & Wright, K. T. (2021). Identification of Candidate Synovial Fluid Biomarkers for the Prediction of Patient Outcome After Microfracture or Osteotomy. *The American Journal of Sports Medicine*, *49*(6), 1512–1523. https://doi.org/10.1177/0363546521995565