



# Gabriel-Mateus Bernardo Harrington

Research Associate

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- School of Medicine, Dementia Research Institute
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## About me

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

## Research profile

Currently a Research Associate Alzheimer's Disease group within the Dementia Research Institute at Cardiff University as a bioinformatician.

My PhD at Keele University based in the OskOR group at The RJAH Orthopaedic Hospital focused on spinal cord injury (SCI). SCI is damage to the spinal cord due to trauma, degeneration or disease that results in a temporary/permanent change to neurological function, recovery from which is highly variable, stymieing development of novel therapies as powering clinical trials is extremely difficult. SCI can lead to devastating consequences for both the physical and mental health of patients, particularly due to the uncertainty of neurological outcomes in the first two weeks post-injury.

I endeavour to discover novel biomarkers of SCI outcomes, both to minimise this uncertainty and to expand our understanding of the underlying pathology of neurological recovery. I use a combination of modelling patient data and proteomic techniques to this end, and have identified a relationship between markers of liver health and SCI recovery.

The lab rotations in the first year of my PhD also allowed me to greatly develop my skills at the bench. At Loughborough University, I investigated genetic expression in hydrogels, gaining experience in 3D tissue culture, hydrogels and PCR. At Nottingham University I studied the effects of alternating current on interfacing wires grown via wireless electrochemistry and gained experience in 3D printing, electrodeposition and microscopy. At Keele University I cultured multiple cell types in 3D and compared viability and growth kinetics via cell staining, fluorescent microscopy. These experiences have given me a highly cross-disciplinary skillset making me a flexible and versatile scientist.

## Education

- |             |  |                      |
|-------------|--|----------------------|
| 2018 - 2021 | PhD in Biomedical Engineering<br>Keele | Keele University     |
| 2013 - 2016 | Biological Sciences, 2:1<br>Lancaster  | Lancaster University |

## Awards

- |      |  |                       |
|------|--|-----------------------|
| 2022 | Neurohack 2022 - Winning team<br>London  | DEMON network         |
| 2021 | Dementia research meets motorsports Innovation Accelerator -<br>Winning team<br>Cranfield University | Race Against Dementia |

## Funding

- |             |                      |  |
|-------------|----------------------|--|
| 2021 - 2021 | CDT Consumable grant | EPSRC Centre for Doctoral Training in Regenerative<br>Medicine<br>Loughborough |
|             |                      | • £5000 awarded  |

## Talks

- |      |  |   |
|------|--|---|
| 2019 | Reproducible Research<br>Manchester  | Centre for Doctoral Training Conference, 2019 |
| 2021 | Proteomic and bioinformatics analyses of plasma from SCI neuro-<br>logical improvers and non-improvers<br>Oswestry | ISCoS 2021                                    |
| 2021 | Reproducible data analysis<br>Virtual  | Centre for Doctoral Training Conference, 2021 |

## Skills

R	Code
Python	Code
SQL	Code
Unix/Linux	Code
Bash	Code
Proteomics	Bioinformatics
Genomics	Bioinformatics
High performance cluster computing	Bioinformatics
Electronic Health data	Wet lab work
3D Tissue Culture	Wet lab work
Microscopy	Wet lab work
Animal handling	Wet lab work
Histology	Wet lab work
Portuguese	Language

## Publications

1. 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>
2. 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>
3. 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>