Brodie E. Mangan

PhD Researcher, Psychology

Faculty of Natural Sciences, University of Stirling, Stirling, UK

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Education

University of Stirling | Stirling, UK

PhD in Psychology | Sept 2023 – Present

Thesis (Working Title): Bridging Cognitive Fatigue with Working Memory

Primary Supervisor: Dr. Dimitrios Kourtis

Secondary Supervisor: Dr Simone Tomaz

University of Glasgow | Glasgow, UK

MSc in Brain Sciences (Merit) | 2021

Glasgow Caledonian University | Glasgow, UK

Graduate Diploma in Psychology (Distinction) | 2020

University of the West of Scotland | Hamilton, UK

BA in Sports Development | 2012

Awards and Honours

PhD Studentship, Institute of Advanced Studies, University of Stirling | 2023

Research Interests

Cognitive Fatigue, Working Memory, EEG, Neuro-dynamics, Cross-Frequency-Coupling, Cognitive Restoration, Environmental Psychology, Green Exercise, High-Stakes Performance.

Publications and Research Output

PEER-REVIEWED ARTICLES

- **Mangan, B. E.**, & Kourtis, D. (2025). The Missing Link: Bridging Cognitive Fatigue with Working Memory. (*Submitted to Journal of Cognitive Neuroscience*).
- **Mangan, B. E.** (2025). WAND (Working-memory Active-fatigue with N-back Difficulty): A Modular Software Suite for Cognitive Fatigue Research. (*Submitted to Journal of Open-Source Software*).

COMMENTARIES

- **Mangan, B. E. (2025).** Restoration requires genuine fatigue: Strengthening green-space cognition research. [Letter to the Editor]. (*Submitted to Journal of Environmental Psychology*).

SOFTWARE

- **Mangan, B. E.** (2025). WAND: Working-memory Adaptive-fatigue with N-back Difficulty (Version 1.0). [https://doi.org/10.5281/zenodo.15389892]. Open-source adaptive N-back suite for standardised fatigue induction.

Presentations & Invited Talks

- (2025, September). *Addressing Methodological Confounds in Cognitive Fatigue Research: Validation of the WAND Protocol for Inducing Cognitive Fatigue*. Poster presentation at the Annual Meeting of the British Association for Cognitive Neurosciences (BACN), University of Edinburgh, UK.
- (2024, May). *Laying the Groundwork: Objective Fatigue Measurement for Assessing Green Space Cognitive Restoration*. Invited talk, Psychology Research Seminar, University of Stirling, UK.
- (2024, April). *Cognitive Enhancement via Green Space Environments*. Invited talk, Institute of Advanced Studies (Accessible Environments Cluster), University of Stirling, UK.

Skills

METHODOLOGIES

- Theoretical Framework Development
- Experimental Design
- Psychophysiology
- Computational Modelling
- Systematic Review

TECHNICAL

- Neuroimaging: EEG (acquisition, pre-processing, time-frequency analysis, ERP, cross-frequency coupling).
- Languages & Software: Python (PsychoPy), R (RStudio), MATLAB, SPSS.

Relevant Professional Experience

Personal Trainer & High-Performance Coach | Self-Employed, Glasgow | 2008 – Present

- Developed and executed long-term, evidence-based training and nutritional programs for over 1,000 clients, ranging from beginners to elite international athletes.
- Served as a high-performance coach for Red Bull, training world-renowned athletes (e.g., Danny MacAskill) to achieve peak physical and competitive outcomes, including injury recovery.
- Specialised in translating complex physiological principles into actionable performance strategies, demonstrating expertise in science communication to a diverse audience.

Personal Health Consultant (Occupational Health) | EDF Energy, Hunterston Nuclear Power Station | 2014 – 2018

- Designed and implemented data-driven lifestyle and training interventions to improve health and performance metrics for staff in a high-stakes industrial environment. Contributed to a team initiative that won the 'Health Working Lives Gold Award'.

Paratrooper | The Parachute Regiment, British Army | 2004 – 2008

- Veteran of the Afghanistan War. Operated in complex, high-pressure environments, developing advanced skills in resilience, discipline, and performance under significant cognitive and physical load.

References

Available upon request.