

PhD Opportunity

Detecting Hostile Behaviour Through Real-time Voice Analysis

Supervisory team

Dr Chris Bowers, Principal Lecturer, Digital Innovation and Intelligent Systems Research Group, University of Worcester

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Research Group

[Digital Innovation and Intelligent Systems Research Group](#)

The PhD Opportunity

This PhD study will explore the automation of hostility assessment from the human voice in real-time. The project will leverage recent advances in machine learning to train a hostility predictor model to identify and classify hostile behaviours.

Demonstrating persistent high levels of hostility in are associated with several morbidities including coronary artery disease. As such, a real-time, non-invasive approach to passive detection of hostile behaviour may have wide application in early detection and treatment of significant healthcare issues.

The PhD may explore:

- Gathering, processing and labelling of training data for an automated hostility predictor.
- Development of a novel approach to automated hostility prediction.
- Consideration of deployment (such as mobile applications) and/or healthcare applications (such as detection of coronary artery disease).

References

- Haney, T. L., Maynard, K. E., Houseworth, S. J., & Scherwitz, L. W. (1996). Interpersonal Hostility Assessment Technique: Description and Validation Against the Criterion of Coronary Artery Disease. *Journal of Personality Assessment*, 66(2), 386–401.
- Diemerling H, Stresemann L, Braun T, von Oertzen T. Implementing machine learning techniques for continuous emotion prediction from uniformly segmented voice recordings. *Front Psychol*. 2024 Mar 20;15:1300996
- Morais, E., Hoory, R., Zhu, W., Gat, I., Damasceno, M., Aronowitz, H. Speech Emotion Recognition Using Self-Supervised Features. *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Singapore, Singapore, 2022, pp. 6922-6926

Application Process

To begin the application process please go to:

<https://www.worc.ac.uk/research/research-degrees/applying-for-a-phd/>.

The Interview

All successful applicants will be offered an interview with the proposed Supervisory Team. You will be contacted by a member of the Doctoral School Team to find a suitable date. Interviews can be conducted in person or over Microsoft Teams.

Funding your PhD

For information about Doctoral Loans please visit: <https://www.worc.ac.uk/study/fees-and-finance/doctoral-loans.aspx>

During your PhD you can access the Research Conference Support Scheme to support the costs of presenting your research at an external conference.

Research at the University of Worcester

Research is central to the University's mission to make a difference in everything that we do. We are committed to delivering excellent research which extends the boundaries of human knowledge but which also improves people's lives by enabling better health outcomes, improving food security, developing environmentally sustainable solutions for crop production and socially sustainable solutions to our ageing population, enhancing public knowledge and understanding of the past and present.

The University hence focuses its research around five high-level challenges facing society, locally, nationally and globally:

- [Human Health and Wellbeing](#)
- [Sustainable Futures](#)
- [Digital Innovation](#)
- [Culture, Identity and Social Exclusion](#)
- [Professional Education](#)

The success of our research is reflected in our continuous improvement in external research assessment processes. In the most recent Research Excellence Framework, REF 2021, the University saw a near 50% increase in the scale of its research and 12% increase in quality, building on its performance in REF 2014 when it was the UK's most improved university in terms of Research Power, a combination of scale and quality.

Research Degrees at Worcester

Our research students are central to our overall mission for research. They are working at the cutting edge of their disciplines and driving forward the quality of our research whilst enriching our research culture. We are looking to increase our research student numbers as a strategic imperative.

Our commitment to our students is reflected in the results of the Postgraduate Research Experience Survey 2023 in which we ranked 3rd for overall research student satisfaction nationally. Key to our success in this area is the Doctoral School, a focal point for all our research students.

It provides:

- day-to-day support for our students, both administrative and practical, through our dedicated team.
- a Research Student Study Space with both PCs and laptop docking station.
- a comprehensive Researcher Development Programme for students and their supervisors.
- a programme of student-led conferences and seminars.

Widening Participation

As part of its mission statement the University is committed to widening participation for its higher degrees. Although most candidates will have an undergraduate and / or a Masters degree, the University is happy to accept applications from candidates with relevant professional qualifications and work related experience.

For further information or an informal discussion on this project, please contact:

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