

PhD Opportunity

The potential of AI in the detection and diagnosis of dementia in rural areas/underserved groups

Supervisory Team

Director of Studies: Dr Shirley Evans

Supervisors: Dr Chris Bowers, Dr Allain Bueno

Research Groups:

[Association for Dementia Studies](#)

[Worcester Biomedical Research Group](#)

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

The PhD Opportunity:

There are currently around 982,000 people with dementia in the UK with the number expected to rise to 1.4 million by 2040 (Alzheimer's Society, 2025). With the number of people over 65 years old set to grow by around 50% in rural areas by 2039 a significant proportion will be affected by dementia. Low diagnosis rates are associated with rurality (All Party Action Group on Dementia, 2023). With no cure on the horizon for dementia timely diagnosis can help ensure that people receive the right support at the right time and be enabled to live well for longer in their communities.

Early detection and prevention of dementia are high priorities for the UK Government as evidenced by the launch of the Dementia Patient Flow Research and Innovation (R&I) Challenge (UK Government 2025). New solutions to dramatically increase the number of patients receiving a timely formal diagnosis of dementia are to be rolled out by the end of the decade.

In-line with the findings from the recent systematic review of systematic reviews, technologies for community-dwelling people with dementia (Neal, Cross, Evans et al, 2025), future research in this area should prioritize emerging artificial intelligence applications.

This PhD will build on the work of the internationally recognised Association for Dementia Studies, Worcester Biomedical and Digital Innovation and Intelligent Systems Research Groups. The successful applicant will have the opportunity to work with a multi-disciplinary team of supervisors to develop their own pathway through, and to contribute new knowledge to, this complex but crucial area of research.

The focus of this PhD could take a number of directions. Applications are welcome from clinical biochemists, biomedical scientists, AI scientists and those from related disciplines.

References:

- Alzheimer's Society (2025), How many people have dementia in the UK? available online, <https://www.alzheimers.org.uk/blog/how-many-people-have-dementia-uk> ,(last accessed 3rd January 2026)
- Bueno, A. A., Brand, A., Neville, M. M., Lehane, C., Brierley, N., & Crawford, M. A. (2015). Erythrocyte phospholipid molecular species and fatty acids of Down syndrome children compared with non-affected siblings. *British Journal of Nutrition*, 113(1), 72–81.
- Casagrande BP, Sherrard G, Fowler MS, Estadella D, Bueno AA. Capillary Blood Docosahexaenoic Acid Levels Predict Electrocardiographic Markers in a Sample Population of Premenopausal Women. *J Clin Med*. 2024 Oct 7;13(19):5957
- Machado, M.M.F., Atico, E.M., Banin, R.M., Hirata, B.K.S., Kempe, P.R.G., Pedroso, A.P., Thomaz, F.M., Oyama, L.M., Ribeiro, E.B., Bueno, Allain , Cerutti, S.M. and Telles, M.M. (2023) Ginkgo biloba extract modulates astrocytic and microglial recruitment in the hippocampus and hypothalamus of menopause-induced ovariectomized rats. *Brain Research*, 1822 (148659). ISSN 1872-6240
- Neal D, Craven MP, Cross J, Evans S, Fox C, ... & Meiland F. (2025). Digital assistive technologies for community-dwelling people with dementia: A systematic review of systematic reviews by the INTERDEM AI & assistive technology taskforce. *DIGITAL HEALTH*. 11. doi:10.1177/20552076251362353
- UK Government, (2025), Advances in science set to transform treatments for people living with dementia, available online, <https://www.gov.uk/government/news/advances-in-science-set-to-transform-treatments-for-people-living-with-dementia>

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 2025 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 Dr Shirley Evans shirley.evans@worc.ac.uk