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## **Cardiff University and the University of Waikato Collaborative Seed Fund Previously Funded Projects**

The seed fund supports staff at Cardiff University and the University of Waikato to develop collaborative research, teaching and/or professional services projects that have clear outcomes and a pathway to develop and sustain the collaboration.

Partnership websites: [Waikato](https://www.waikato.ac.nz/international/partnerships/our-partnerships/cardiff-strategic-partnership) | [Cardiff](https://www.cardiff.ac.uk/international/international-partnerships/waikato/)

**Call 6, 2024**

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| **Project** | **Waikato lead** | **Cardiff lead** |
| **CodeWars: "CodeWars: Generative AI and Students’ Experiment in Secure Code Development** | [Junaid Haseeb](https://profiles.waikato.ac.nz/junaid.haseeb) | [Walter Colombo](https://profiles.cardiff.ac.uk/staff/colombog) |
| **AI-HEART: Artificial Intelligence for Healthcare Efficiency and Analytics in Resource and Treatment-Optimisation** | [David McCormack](https://profiles.waikato.ac.nz/david.mccormack) | [Daniel Gartner](https://profiles.cardiff.ac.uk/staff/gartnerd) |

**Call 5, 2024**

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| **Project** | **Waikato lead** | **Cardiff lead** |
| **The development and characterisation of novel antimicrobial and immunomodulatory titanium alloys for biomedical applications** | [Leandro Bolzoni](https://profiles.waikato.ac.nz/leandro.bolzoni) | [Wayne Nishio Ayre](https://profiles.cardiff.ac.uk/staff/ayrewn) |
| **SUSTAIN3D: Revolutionising Sustainable Construction for Resilient Communities with 3D Printing and Mining Tailings** | [Dr Kim de Graaf](https://profiles.waikato.ac.nz/kim.degraaf) | [Viviana Novelli](https://profiles.cardiff.ac.uk/staff/novelliv) |
| **Understanding human-climate interactions in the South Pacific** | [Fiona Petchey](https://profiles.waikato.ac.nz/fiona.petchey) | [Eleanor John](https://profiles.cardiff.ac.uk/staff/johne11) |
| **Extremism and counter-extremism: developing a systematic review protocol** | Lisa Thompson | [Bethan Davies](https://profiles.cardiff.ac.uk/staff/daviesba1) |
| **Safety and Usability of Artificial Pancreas Systems** | [Jessica Turner](https://profiles.waikato.ac.nz/jessica.turner) | [Dr katarzyna Stawarz](https://profiles.cardiff.ac.uk/staff/stawarzk) |
| **Curriculum theorizing and place: How can currere support teachers in creating place-based curricula in Wales and Aotearoa New Zealand?** | [Dr Jessica Rubin](https://profiles.waikato.ac.nz/jessica.rubin) | [Dr Kevin Smith](https://profiles.cardiff.ac.uk/staff/smithk26) |

**Call 4, 2023**

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| **Project** | **Waikato lead** | **Cardiff lead** | **Plain language outcome summary** |
| **Automatic apple localisation and ripeness detection in orchard conditions** | [Dr Hin Lim](https://profiles.waikato.ac.nz/hin.lim) | [Dr Yulia Hicks](https://profiles.cardiff.ac.uk/staff/hicksya) | PhD student Mr Ziang Zhao visited UoW in February and managed to gather data required to test his AI algorithms for fruit detection and ripeness in a real-world environment on a mobile platform, and this led to a joint peer-reviewed publication accepted at a leading international conference publication, called 20th International Conference on Automation Science and Engineering (CASE) held in Bari, Italy – 28th August to 1st September. Dr Ben McGuiness visited Cardiff University in April and presented our recent work with Ziang. We are currently discussing further collaborative grant application with a potential research problem already identified. |
| **Reprogramming nanobody diagnostics with non-natural amino acids for biosensor conjugation** | [Dr William Kelton](https://profiles.waikato.ac.nz/william.kelton) | [Prof Dafydd Jones](https://profiles.cardiff.ac.uk/staff/jonesdd) | We have recently completed a very successful seed funding project exploring the incorporation of non-natural amino acids into nanobodies for diagnostic applications. This project has since turned into a multi-national collaboration and we’re collectively excited about the scientific (and commercial) potential of the work. In April, Waikato hosted Cardiff PhD student (Athena Zitti) for 6 weeks to learn about nanobody discovery. In return, a student (Kevin Beijerling) and Dr Kelton travelled to Cardiff in June 2024 to learn about techniques for working with unnatural amino acids over the course of a week. The collaboration has since been awarded additional BBRSC external funding and is planning to test the first nanobody biosensors in 2025. |
| **Sharing mentoring methodologies to increase motivation to study languages other than English in secondary schools in New Zealand and Wales** | [Dr Chelsea Blickem](https://profiles.waikato.ac.nz/chelsea.blickem)and [Dr Laura Gurney](https://profiles.waikato.ac.nz/laura.gurney) | [Prof Claire Gorrara](https://profiles.cardiff.ac.uk/staff/gorrara) | The project has successfully piloted a language mentoring project from Wales in New Zealand to improve attitudes towards language learning – both international and indigenous languages. This has led to rich knowledge exchange between academics and professional services staff/teams in modern languages, education, TESOL and applied linguistics; has led to the adaptation of tools and training program for school/university partnership in NZ; deepened collaboration and international benchmarking for sister projects; stimulated engagement with policymakers in the Welsh Senedd; and is leading to the publication of an evaluation report and co-production of research articles / publications with Research Assistants aimed at impacting education policy in NZ. |
| **The resilience of rural SMEs in Aotearoa New Zealand and Wales: A comparative study** | [Dr Abhishek Mukherjee](https://profiles.waikato.ac.nz/abhishek.mukherjee)and [Dr Jonathan Scott](https://profiles.waikato.ac.nz/j.scott) | [Dr Robert Bowen](https://profiles.cardiff.ac.uk/staff/bowenr16) | The project investigated the resilience of small and medium-sized enterprises (SMEs) in Aotearoa New Zealand (NZ) and Wales. The project was a mixed methods study, with a review of the literature on SME resilience; and interviews with 15 SMEs in NZ and 12 in Wales to explore their experiences in more depth. The team co-created a framework for supporting SME resilience. Therefore, the project contributes to knowledge on supporting SME resilience and the impacts of well-being policies and providing valuable outputs for both the NZ and Welsh Governments in shaping policies to support SMEs. |
| **Scoping new programme developments for ALPSS** | Professor Mark Dyer | [Prof Juliet Davis](https://profiles.cardiff.ac.uk/staff/davisjp) | Not available. Commercial in confidence. |
| **Renewable-fed DC homes with innovative converter technology to achieve net-zero GHG emissions** | [A Prof Nihal Kularatna](https://profiles.waikato.ac.nz/nihal.kularatna) | [Dr Janaka Ekanayake](https://profiles.cardiff.ac.uk/staff/ekanayakej) | The project was planned to set up a longer-term link between UOW’s Power Electronics Research (WaiPER) and Cardiff Uni recognizing that the UoW team is working on supercapacitor assisted power converters and protection systems useful for renewable energy powered DC homes of the future. Cardiff university’s Centre for Integrated Renewable Energy Generation and Supply (CIREGS) is working on the influence of renewable systems on the wider AC power grid in the UK and elsewhere. These two subject areas have a great synergy for future collaboration |

**Call 3, 2023**

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| **Project** | **Waikato lead** | **Cardiff lead** | **Plain language outcome summary** |
| **Cardiff- Waikato PhD Studentships in English and Creative Writing** | [Dr Maebh Long](https://profiles.waikato.ac.nz/maebh.long) | [Prof Martin Willis](https://profiles.cardiff.ac.uk/staff/willism8) | Ongoing project |
| **Evaluation of biofilm formation by Neisseria gonorrhoeae mutants of DNA ligase LigE** | [Dr Adele Williamson](https://profiles.waikato.ac.nz/adele.williamson) | [Prof David Williams](https://profiles.cardiff.ac.uk/staff/williamsdd) | Ongoing project |
| **FUSCO – FUnctionalised natural fibres for Sustainable COncrete** | [Dr Christian Gauss](https://profiles.waikato.ac.nz/christian.gauss) | [Dr Riccardo Maddalena](https://profiles.cardiff.ac.uk/staff/maddalenar) | This funding proposal sought to investigate local NZ fibres (Harakeke and Hemp) as a reinforcement for cementitious composites with alternative binders. We successfully developed composites with different formulations and studied the mechanical, physical, and microstructure properties. The obtained results enabled us to draft a research article worthy of publication. The collaboration culminated in a joint external grant submission (Marsden Fund) along with the University of Sao Paulo (Brazil). |
| **Dual Language Picturebooks and inservice teachers: Using dual language picturebooks to**  **support Welsh language learning and teaching** | [A Prof Nicola Daly](https://profiles.waikato.ac.nz/nicola.daly) | [Dr Siwan Rosser](https://profiles.cardiff.ac.uk/staff/rossersm) | The outcome of our 7-week project has been the delivery of 5 workshops with inservice teachers exploring the use of dual language picturebooks to support Welsh language teaching in English Medium schools. We have collected extensive data from these workshops and will now proceed with analysis. We have plans for at least 2 publications (one Welsh, one English), and at least 2 conference presentations in 2024. We also delivered three lectures to key university sites for children's literature scholarship including Glasgow University, Goldsmith University (London), and Cambridge University.  The outcome of our 7-week project has been the delivery of 5 workshops with inservice teachers exploring the use of dual language picturebooks to support Welsh language teaching in English Medium schools. We have collected extensive data from these workshops and will now proceed with analysis. We have plans for at least 2 publications (one Welsh, one English), and at least 2 conference presentations in 2024. We also delivered three lectures to key university sites for children's literature scholarship including Glasgow University, Goldsmith University (London), and Cambridge University.  We have built upon our previous work exploring the comparative forms of dual language picturebooks in Aotearoa and Wales, and our relationship is much strengthened by the opportunity for sustained in person contact, planning, and data collection. |
| **The therapeutic potential of kava in the treatment of psychological trauma** | [Dr Apo Aporosa](https://profiles.waikato.ac.nz/apo.aporosa) | [Prof Ben Hannigan](https://profiles.cardiff.ac.uk/staff/hanniganb) | During the week of 30 October 2023, Aporosa was hosted by Professor Ben Hannigan and Dr Dean Whybrow at Cardiff University’s School of Healthcare Sciences. Over the course of the week we visited local organisations working with retired vets and ran a full day workshop. This work has led to the formation of a project team who aim to submit a proposal to fund clinical trials to validate the kava PTSD among a local participant cohort. That funding proposal first requires a legal opinion. This is currently in process. |
| **Musical Language/Iaith Gerddorol/Pūtahitanga: The Role of contemporary and popular music genres in language revitalization and emergent forms of cultural identity within Aotearoa and Cymru.** | [Prof Gareth Schott](https://profiles.waikato.ac.nz/gareth.schott) | [Reader Huw Williams](https://profiles.cardiff.ac.uk/staff/williamsh47) | The project highlighted the role and impact that contemporary music is now playing in language vitality and revitalization in both Cymru and Aotearoa for musicians (who elect to perform in a language of the land). In doing so, it offered insights into the motivations and aims of a new generation of musicians whose practice is strongly representative of their indigeneity or minority language community. In focusing on contemporary genres of music we sought to examine and acknowledge modes of music that serve as a global and universal platform for facilitating communication and connection that renews, diversifies and possibly contest deep held notions of ethnic cultures. |
| **The Waters that Bind Us: Exploring Water Citizenship, Knowledge and Understandings in Wales and Aotearoa New Zealand** | [Prof Belinda Wheaton](https://profiles.waikato.ac.nz/belinda.wheaton) | [Dr Kate Moles](https://profiles.cardiff.ac.uk/staff/molesk) | The project developed a collaborative research network to strengthen and consolidate existing research excellence on water scholarship around bodies, beings and becoming’s through water sports in Cardiff and Waikato. Our network was focused on developing the concept of Water citizenship, as affective, embodied and personal, but also collective, public and political (for example through, coastal stewardship and restoration, and environmental protests).  Face-to-face huis/workshops were delivered in Wales and Aotearoa. Across these we engaged with diverse communities tied to water through leisure, work and activism. We developed and implemented innovative place-based participation methodologies involving; a) in situ co-ethnography and autoethnography (on shorelines and in the water); b) mood board co-production as a method. We worked with artists, authors and designers to produce outputs based on these encounters. |

**Call 2, 2022**

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| **Project** | **Waikato lead** | **Cardiff lead** | **Plain language outcome summary** |
| **The fundamentals of mental health care in nursing practice: An international comparative qualitative study** | [Graham Holman](https://profiles.waikato.ac.nz/graham.holman) | [Dr Dean Whybrow](https://www.cardiff.ac.uk/people/view/2596583-whybrow-dean) | This project will lead to clear evidence to direct both distinctive and generalist approaches to nurse teaching and training. This will include new insights into the inherent nature of the nursing profession, both generally and in a manner that is relevant or specific to the mental health field. Our dissemination plan has included the preparation of a draft manuscript due to be submitted to an international journal. An abstract submission to a relevant international conference. |
| **A cross-national exploration of responses to family violence** | [Prof Devon Polaschek](https://profiles.waikato.ac.nz/devon.polaschek) | [Prof Amanda Robinson](https://www.cardiff.ac.uk/people/view/38078-robinson-amanda) | Our project team conducted cross-national research and shared teaching knowledge. Our community partners surprised us with an overwhelmingly positive response to our research project, which meant that we collected more interview data than initially anticipated and are currently working on analysing the data and writing a journal article. Overall, this project strengthened strategic partnership between the University of Waikato and Cardiff University by connecting the Security, Crime and Intelligence Innovation Institute (SCIII) and Te Puna Haumaru (NZISCS). |
| **Learning from Each Other: Understanding and Facilitating the Mobility of Environmental Policy and Practice Between Wales and New Zealand** | [Prof Iain White](https://profiles.waikato.ac.nz/iain.white) | [Prof Gareth Enticott](https://www.cardiff.ac.uk/people/view/363232-enticott-gareth) | N/A |
| **Sharing good practice in learning and teaching via open publications** | [Michelle Blake](https://profiles.waikato.ac.nz/michelle.blake) | Tracey Stanley | A 14 chapter, approximately 75,000-word digital book comprising papers derived from  presentations at LearnFest 2022, jointly hosted by Waikato and Cardiff. Chapter authors include scholars from Cardiff, Auckland, Waikato, including offshore campuses in China. The publication will be open access via a creative commons license, and highly flexible with chapters available to be downloaded individually. |
| **Factors that drive Phishing attacks** | [Dr Vimal Kumar](https://profiles.waikato.ac.nz/vimal.kumar) | [Dr Amir Javed](https://www.cardiff.ac.uk/people/view/473246-javed-amir) | The project enabled us in the development of a novel methodology for creating honeypots for phishing emails to understand the techniques and tactics used by adversaries to launch phishing emails. This innovative technique involves setting up simulated email accounts in New Zealand, India and the United Kingdom that mimic potential targets to attract phishing attempts. These honeypot accounts are strategically designed to appear as enticing targets for cybercriminals. |

**Call 1, 2022**

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| **Project** | **Waikato lead** | **Cardiff lead** | **Plain language outcome summary** |
| **Enhancing Caregiving during Infancy and Maternal Wellbeing** | [Dr Oleg Medvedev](https://profiles.waikato.ac.nz/oleg.medvedev) | [Prof Merideth Gattis](https://www.cardiff.ac.uk/people/view/840109-gattis-merideth) | Our project investigated parenting beliefs about how to care for infants. The seed funds allowed us to establish a collaborative partnership between researchers with expertise in perinatal mental health, infant care and development, and cutting-edge methods for building statistical models that identify predictor-outcome relations. We used novel statistical techniques to examine relations among parenting beliefs, parenting knowledge, and parent and child characteristics that predict these two factors. The results are reported in four papers that are now under review or near submission. We have also submitted a funding application to build on this valuable foundation and continue our collaborative work. |
| **Bee-coming together: Primary school students connecting with each other and with nature** | [Dr Megan Grainger](https://profiles.waikato.ac.nz/megan.grainger) & [Dr Cathy Buntting](https://profiles.waikato.ac.nz/cathy.buntting) | [Prof Les Baillie](https://www.cardiff.ac.uk/people/view/90823-baillie-les) | The Cardiff-Waikato seed funding stimulated new collaborations between Cardiff and Waikato researchers in Science and Education, Waikato researchers and Maeroa Intermediate, and Maeroa Intermediate in Hamilton and Ysgol Pen Rhos in Llanelli. Educational resources developed in Wales were used in Wales and adapted and piloted in New Zealand, including updating the Spot-a-bee citizen science app to feature NZ species. Through the new Waikato-Maeroa school-scientist collaboration we were able to grow teacher and student understanding of science as a process using bees as the context for learning. Research focused on the impacts of school-scientist partnerships and the affordances of boundary-spanning collaborations. |
| **Chwedlau and Purākau: Traditional Legends in Early Childhood Settings** | [Associate Prof Amanda Bateman](https://www.waikato.ac.nz/news-opinion/media/2022/kiwi-and-welsh-universities-collaborate-to-bring-stories-and-students-together) | [Prof Sioned Davies](https://www.cardiff.ac.uk/people/view/116281-davies-sioned) | A number of key findings emerged from the SEED project, including insight into the types of stories unique to each country and culture, common storytelling techniques and multimodal ways of sharing stories, together with the ways in which stories support local curriculum in both New Zealand and Wales. Key points of difference between Welsh and Māori storytelling practices in early childhood included traditional Welsh stories being utilised to facilitate children’s literacy learning in the early years whereas traditional Māori stories, with their focus on the land, play a crucial role in positive associations with cultural identities more holistically. |