



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](#) | [Cardiff](#)

Call 7, 2026

Project	Waikato lead	Cardiff lead
Mobilising Creative Practice within Global and Digital Humanities: Interdisciplinarity, Innovative Curricula and Inclusive Pedagogies	A/Prof. Michael Williams	Dr Pedro Faria Gomes
‘Indigenous Peoples and Global Environmental Governance: Advancing Collective Rights and Cultural Values through Multilateralism and International Institutions?’	Dr Sam Campbell	Dr Ricardo Pereira
Development of real-time pathogen detection devices using modelling-driven nanocarbon biosensors.	Mr Beijerling	Dr Amelia Francis
Development of novel prebiotics from marine glycans	Dr Chelsea Vickers	Prof. Andrew Weightman
From Rock to Rupture: Cardiff–Waikato Study on Fluid-Assisted Fault Slip	Dr Marcel Mizera	Prof. Ake Fagereng
Beyond grammar: Exploring and deepening relational, competency focused approaches to Indigenous language revitalisation	Dr Paora Stucki	Dr Angharad Naylor

Call 6, 2024

Project	Waikato lead	Cardiff lead	Plain language outcome summary
CodeWars: "CodeWars: Generative AI and Students' Experiment in Secure Code Development	Junaid Haseeb	Walter Colombo	This project achieved several key milestones that strengthened international collaboration and contributed meaningful insights to the field. A series of detailed case studies were developed by using LLMs to generate code which formed the foundation for two interactive workshops conducted at Cardiff University and the University of Waikato, enabling participants in both locations to engage and give feedback on using LLMs to teach and learn vulnerability analysis.

			As part of the project's collaborative efforts, the Cardiff University team visited the University of Waikato to strengthen academic partnerships and co-host the workshop along with future research activities. This visit facilitated productive discussions, joint planning sessions, and future direction of the data gathered from the workshops. The project culminated in the submission and presentation of a research paper at the CISSE conference, allowing the team to disseminate its outcomes to an international audience of cybersecurity educators and researchers
AI-HEART: Artificial Intelligence for Healthcare Efficiency and Analytics in Resource and Treatment-Optimisation	David McCormack	Daniel Gartner	

Call 5, 2024

Project	Waikato lead	Cardiff lead	Plain language outcome summary
The development and characterisation of novel antimicrobial and immunomodulatory titanium alloys for biomedical applications	Leandro Bolzoni	Wayne Nishio Ayre	Funding was sought to lay the foundation for the establishment and strengthening of an interdisciplinary strategic research group, leveraging UoW's strength in developing and manufacturing biomaterials and CU's strength in biological and life sciences, through a fundamental study of next generation biomaterials with autogenous antibacterial capability. For that, novel titanium alloys were designed, consumables bought, and materials manufactured at UoW. Subsequently, the mechanical behaviour, corrosion performance, antibacterial activity, and biocompatibility were characterised either at CU or UoW. Based on that, a scientific research article was drafted, reviewed, and final refinements are being made for its imminent submission for publication. This demonstrates the ability of CU (Dr. Ayre) and UoW (Dr. Bolzoni) to collaboratively work together towards a common goal.

SUSTAIN3D: Revolutionising Sustainable Construction for Resilient Communities with 3D Printing and Mining Tailings	Dr Kim de Graaf	Viviana Novelli	<p>This research investigated the use of gold mine tailings (GMT) as a sustainable replacement for sand in cement mortar. Two mixes, replacing 40% and 60% of sand with GMT, were tested under controlled curing and wet-dry cycling in saltwater. Results showed that using GMT improved durability by reducing water absorption, increasing density, and enhancing resistance to chloride ingress. The 40% GMT mix performed best, showing higher compressive strength and lower porosity. However, exposure to wet-dry cycling weakened all mixes. This research highlights GMT's potential as an eco-friendly material, but further studies are needed to improve its performance in harsh conditions.</p>
Understanding human-climate interactions in the South Pacific	Fiona Petchey	Eleanor John	<p>The two key objectives of the project have been met or are in progress. EJ has sent carbonate samples from key Pacific archaeological sites to UoW for radiocarbon analysis (results pending). PhD student Leteisha Lamb visited Cardiff University in November 2024 for training and analysis. Specifically, she networked with researchers specialising in carbonate geochemistry and archaeology, presented a seminar, and was trained in specialised equipment to prepare and analyse seashell and water samples. While at CU, she collected isotopic data from NZ archaeological sites that provide information on the local marine/estuarine environment from 400 to 700 years ago.</p>
Extremism and counter-extremism: developing a systematic review protocol	Lisa Thompson	Bethan Davies	<p>Through the Collaborative Seed Fund, we developed a proposal for a systematic review on primary interventions to prevent extremism. We created a systematic review protocol detailing study identification, selection, data extraction, and synthesis. Our submitted proposal to the Campbell Collaboration in October 2024 was unsuccessful, but we have since adapted it to focus on synthesising theoretical evidence with cutting edge methods, and plan to submit it for publication in the Campbell Systematic Reviews journal upon securing funding (in progress). We also presented our project as a conference poster and delivered seminars in our respective departments, strengthening ties between our institutes.</p>
Safety and Usability of Artificial Pancreas Systems	Jessica Turner	Dr Katarzyna Stawarz	<p>This project explored how to make Artificial Pancreas (AP) systems safer and easier for people with diabetes. Our study identified key challenges in device</p>

			<p>integrations, usability and security with new directions for further collaboration and future research. The team ran a workshop to build a research network and investigated common issues with diabetes tech. Outcomes included a publication and future work into physical diabetes devices to determine safety and reliability. The project has laid the groundwork for improving AP systems and supporting better health outcomes.</p>
<p>Curriculum theorizing and place: How can currere support teachers in creating place-based curricula in Wales and Aotearoa New Zealand?</p>	<p>Dr Jessica Rubin</p>	<p>Dr Kevin Smith</p>	<p>This project explored how the currere method can support teachers in creating place-based curricula in Wales and Aotearoa New Zealand. Through workshops, reflective activities, and theoretical discussions, participants engaged with concepts of place, wellbeing, and curriculum theorising. Despite limited attendance, the workshops facilitated valuable dialogue. In New Zealand, participants from Japan and New Zealand engaged deeply with the reflective and place-based methodologies, with the Japanese participant specifically highlighting the value of wellbeing and mindful reflection. The workshops helped refine organisational approaches, develop resources, and strengthen international research collaborations. Future work will build on these insights for extended funding applications.</p>

Call 4, 2023

Project	Waikato lead	Cardiff lead	Plain language outcome summary
Automatic apple localisation and ripeness detection in orchard conditions	Dr Hin Lim	Dr Yulia Hicks	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 McGuinness 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	Prof Dafydd Jones	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 and Dr Laura Gurney	Prof Claire 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 and Dr Jonathan Scott	Dr Robert Bowen	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	Not available. Commercial in confidence.
Renewable-fed DC homes with innovative converter technology to achieve net-zero GHG emissions	A Prof Nihal Kularatna	Dr Janaka Ekanayake	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

Project	Waikato lead	Cardiff lead	Plain language outcome summary
Cardiff- Waikato PhD Studentships in English and Creative Writing	Dr Maebh Long	Prof Martin Willis	Ongoing project
Evaluation of biofilm formation by Neisseria gonorrhoeae mutants of DNA ligase LigE	Dr Adele Williamson	Prof David Williams	Ongoing project
FUSCO – FUnctionalised natural fibres for Sustainable COncrete	Dr Christian Gauss	Dr Riccardo Maddalena	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	Dr Siwan Rosser	<p>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.</p> <p>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</p>

			<p>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.</p> <p>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.</p>
The therapeutic potential of kava in the treatment of psychological trauma	Dr Apo Aporosa	Prof Ben Hannigan	<p>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.</p>
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	Reader Huw Williams	<p>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.</p>
The Waters that Bind Us: Exploring Water Citizenship, Knowledge and	Prof Belinda Wheaton	Dr Kate Moles	<p>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.</p>

Understandings in Wales and Aotearoa New Zealand			<p>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).</p> <p>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.</p>
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Call 2, 2022

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	Dr Dean Whybrow	<p>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.</p>
A cross-national exploration of responses to family violence	Prof Devon Polaschek	Prof Amanda Robinson	<p>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 Haumaruru (NZISCS).</p>
Learning from Each Other: Understanding and Facilitating the Mobility of Environmental Policy and Practice Between Wales and New Zealand	Prof Iain White	Prof Gareth Enticott	<p>N/A</p>
Sharing good practice in learning and teaching via open publications	Michelle Blake	Tracey Stanley	<p>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.</p>

Factors that drive Phishing attacks	Dr Vimal Kumar	Dr Amir Javed	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.
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Call 1, 2022

Project	Waikato lead	Cardiff lead	Plain language outcome summary
Enhancing Caregiving during Infancy and Maternal Wellbeing	Dr Oleg Medvedev	Prof Merideth Gattis	<p>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.</p>
Bee-coming together: Primary school students connecting with each other and with nature	Dr Megan Grainger & Dr Cathy Buntting	Prof Les Baillie	<p>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.</p>
Chwedlau and Purākau: Traditional Legends in Early Childhood Settings	Associate Prof Amanda Bateman	Prof Sioned Davies	<p>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.</p>