

# National Industry PhD Program

## Round 3 2024 – Successful Projects

Application No.	Stream	Project Title	Project Description	Field of Research	Participating University	Industry Partner/s	State	No. of PhD Awards
36245	Industry Linked	<b>New ways to choose healthy eggs to improve IVF success rates</b>	In vitro fertilisation (IVF) treatment aids nearly 1 in 20 births in Australia, however the success rate remains low. This project will help IVF clinics develop ways to screen the fluid within the women's ovarian follicles to select healthier eggs for better embryo transfer, to improve pregnancy success rates.	Medical Science	The University of Adelaide	Repromed	SA	1
36216	Industry Linked	<b>Employing virtual reality to tackle clinical depression</b>	This project will explore how personalised virtual reality (VR) experiences can stimulate positive emotions, providing a non-pharmaceutical method for treating people diagnosed with clinical depression.	Health	The University of Adelaide	Brain Vector Pty Ltd	SA	1
36157	Industry Linked	<b>Turning carbon dioxide into valuable acids</b>	This project aims to scale a system that converts carbon dioxide into valuable chemicals like acetic and formic acid, making it a commercially viable way to reduce CO2 emissions and mitigate climate change.	Processes and Resources Engineering	Monash University	BASF Australia Ltd	VIC	1
36180	Industry Linked	<b>Finding greener ways to design and build aircraft</b>	This project will explore how to use more sustainable materials in aircraft design and construction, helping meet Australia's net zero carbon emissions targets.	Aerospace Engineering	University of New South Wales	Boeing Aerostructures Australia	NSW	1
36105	Industry Linked	<b>Improving patient outcomes system: An Australian heart failure dashboard and registry</b>	Heart failure accounts for 1 in 50 deaths in Australia. This project will develop a heart failure dashboard and clinical quality registry to aid medical professionals in treatment decisions, improving patient outcomes and health care efficiency.	Health	University of New South Wales	Eastern Heart Clinic	NSW	1
36163	Industry Linked	<b>Privacy-preserving authentication for</b>	Distributed energy resources (DER) systems, such as solar and energy storage systems, are key to the Australian Government's Renewables and Low-emission Technologies	Networks and communications	Griffith University	REDX TECHNOLOGY	QLD	1

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		<b>distributed energy resources systems</b>	priority. This project aims to develop new authentication protocols to increase the security and privacy of communication among DER systems by preventing impersonation attacks and sensitive information leakage.			AUSTRALIA PTY LTD		
36081	Industry Linked	<b>Improving the safety of self-driving vehicles in Australia</b>	Before Australians are ready to see more automated vehicles (AVs) on our roads, we need to better understand how these vehicles interact with humans, especially in potentially life-threatening and dangerous circumstances. This project aims to design and evaluate novel human-machine interface systems to improve situation awareness and drivers' abilities to take over control of AVs when necessary.	Computer Science	Queensland University of Technology	Seeing Machines Pty Ltd.	QLD	1
36085	Industry Linked	<b>Greening the aviation industry: novel approaches to hydrogen fuel-cell technology</b>	The aviation industry produces approximately one billion tons of CO2 every year. This project will explore how to effectively cool hydrogen fuel-cell technologies so that they can be designed to meet aircraft safety requirements, bringing us closer to achieving clean air travel in Australia and beyond.	Mechanical Engineering	Queensland University of Technology	Stralis Aircraft Pty Ltd	QLD	1
36183	Industry Linked	<b>Improving the safety of automated vehicles in regional Australia by reducing fatigue</b>	With more automated vehicles used in regional Australia, especially for commercial transport, this project aims to design a naturalistic conversational agent to reduce passive fatigue and driver error as well as increase driver performance. This project will improve road safety and boost the Australia's freight capacity.	Computer Science	Queensland University of Technology	Seeing Machines Pty Ltd.	QLD	1
36145	Industry Linked	<b>Creating healthier food products for older Australians</b>	Nutritional requirement of people who are getting older are different from those of younger people. New national dietary guidelines for Australia are being developed. They will include specific advice for older adults. This project will focus on food product formulation to support muscle function and health in older Australians.	Food Sciences and Biotechnology	Queensland University of Technology	Sanitarium Health Food Company	QLD	1
36116	Industry Linked	<b>Leveraging AI and smart bed technology to monitor patient mobility</b>	Patient immobility can lead to hospital-acquired pressure injuries, costing Australia \$5.5 billion annually. This project will use smart beds with pressure sensors and machine learning methods to monitor patients in real time, improving patient care, quality of life, and reducing health care costs.	Artificial Intelligence	Queensland University of Technology	Stryker	QLD	1

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36087	Industry Linked	<b>Beyond the commute: Reimagining Australian CBD travel in a post-pandemic world</b>	The Covid 19 pandemic significantly disrupted public transport and increased remote working. This project will investigate the sustained changes in Australian CBD commuter travel patterns post Covid-19 and new ways of working, providing evidence-based recommendations for better planning, policy, investment and management of transport and land use infrastructure.	Transport Engineering	Queensland University of Technology	Hartecs Group Pty Ltd	QLD	1
36178	Industry Linked	<b>Maintaining children's cultural connection in out-of-home care</b>	Children in the out-of-home care system are amongst the most marginalised in Australia. For many, disconnection from family means disconnection from culture, including languages, rituals and beliefs. This project will improve the out-of-home care system's ability to preserve and maintain this cultural connection, which is critically important in developing resilience and positive outcomes for children.	Children's Services	Western Sydney University	OzChild, Children Australia	WA	1
36088	Industry Linked	<b>Responding to antimicrobial resistance: Learning from the COVID-19 Pandemic</b>	Antimicrobial resistance (AMR) is a global threat, killing over 4.95 million people each year. This project will compare resistance patterns before and after the COVID-19 pandemic to improve understanding of AMR dynamics and ideal surveillance methods.	Pathology	University of Wollongong	Southern IML Pathology	NSW	1
36238	Industry Linked	<b>Improving fruit yield with unmanned ground vehicle and imaging technology</b>	Orchard growers are increasingly adopting robotics and artificial intelligence in crop management to increase harvest yields. This project aims to integrate unmanned ground vehicle (UGV) technology into orchard imaging and harvesting technologies, allowing growers to improve resource allocation as well as enhance crop yield and quality .	Automotive engineering and technology	CQUniversity	Freelance Robotics	QLD	1
36198	Industry Linked	<b>3D printing tailored bone implants</b>	This project will design and 3D print new types of bone implants to address the functional and aesthetic limitations of conventional bone grafting and titanium implants in bone reconstruction surgery	Biomedical Engineering	The University of Sydney	Chris O'Brien Lifehouse	NSW	1
36139	Industry Linked	<b>Bus Safety and Crash Dynamics Simulation</b>	Enhancing Bus Safety and Occupant Survival Strategies to mitigate the impact of crashes on occupants via advanced simulation techniques with a focus on the Bus Structure; Seat Integrity and Child Restraint Systems for School Buses.	Automotive Engineering	RMIT University	APV Corporation Pty Ltd	VIC	1

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36193	Industry Linked	<b>Real-time remote patient monitoring to support older Australians</b>	Many elderly Australians in regional and remote areas experience challenges when accessing health care and support. This project will use artificial intelligence and smart Internet-of-Thing (IoT) devices to develop a real-time Remote Patient Monitoring (RPM) system, allowing healthcare workers to monitor patients remotely and predict health emergencies, reducing the cost of providing this care.	Artificial Intelligence	RMIT University	KYPERX PTY LIMITED	VIC	1
36131	Industry Linked	<b>A dynamic seatbelt for all scenarios</b>	Developing a dynamic seatbelt retractor system, that enables a wide range of pre-tensions for various crash scenarios.	Electrical Engineering	RMIT University	APV Engineering and Testing Services Pty Ltd	VIC	1
36217	Industry Linked	<b>An investigation into the volatile constituents of Australian native plants to understand their chemical and sensory contribution to spirits</b>	In collaboration with First Nation businesses and distilleries, this project will identify Australian native botanicals as an alternative and indigenous source for gin and vodka, offering opportunities for Indigenous businesses. The project will help First Nations communities to retain intellectual property and ensure the culturally appropriate use of these botanicals.	Agriculture, Environmental and Related Studies	The University of Melbourne	Poison Creek Distilling, T/A Brogan's Way Distillery Pty/Ltd	VIC	1
36150	Industry Linked	<b>A novel approach to tackling Queensland fruit fly</b>	The Queensland fruit fly is a major insect pest that costs the horticulture industry \$300 million annually. This project aims to determine how this insect detects plant odours to find the crop plants on which it lays eggs. The outcomes will support the development of new approaches to disrupt its ability to find these crops and thus aid the management of fruit fly and other significant insect pests.	Horticulture	La Trobe University	Agriculture Research Victoria	VIC	1
36119	Industry Linked	<b>A statistical framework for assessing Australian Football Player development</b>	Assessing Australian Football players' performance across different competition levels is extremely challenging. This project will develop a standardised evaluation and measurement tool that football clubs can use to assess players current performance and potential trajectory.	Human Movement	La Trobe University	Essendon Football Club	VIC	1
36118	Industry Researcher	<b>Reducing methane emissions from dairy cows</b>	Changing cows' diets has the potential to reduce greenhouse gas emissions as well as increase the efficiency and productivity of Australia's dairy industry. This project explores whether cows that graze on many types of grass and eat foods rich in gut-supporting bacteria produce less methane,	Agricultural science	La Trobe University	Agriculture Victoria Research – Department of Energy,	VIC	1



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			as well as help improve soil health, nutrient cycling and animal performance.			Environment and Climate Action / The Product Maker		
36126	Industry Researcher	<b>Ending exploitation and modern slavery in the construction industry</b>	This project will design a framework for holding construction companies to account for worker exploitation and slavery practices. To ensure it is a workable industry model, the framework will be based on the lived experiences of construction workers who have experienced exploitative, unsafe and unlawful conditions.	Accounting	University of Wollongong	Edge Impact	NSW	1
36125	Industry Researcher	<b>Manufacturing 'self-healing' ceramics at scale</b>	'Self-healing' ceramics can be easily shaped and often repair themselves. They are used in aircraft, engines, nuclear reactors, power plants and batteries but are difficult to manufacture at scale. This project will develop a way to make these revolutionary products in large quantities.	Manufacturing Engineering	University of Wollongong	Gravitas Technologies	NSW	1
36189	Industry Researcher	<b>Improving the sustainability of Tasmanian Atlantic salmon fish stocks</b>	This project will improve the resilience of Australia's Atlantic salmon industry to the effects of climate change. This research will develop better breeding methods to increase salmon growth rates, disease resistance and survival in warming ocean waters.	Aquaculture	University of Tasmania	Salmon Enterprises of Tasmania Pty Limited (SALTAS)	TAS	1
36231	Industry Researcher	<b>Improving building design and construction using engineered wood products</b>	This project will explore using engineered wood from lower grade, sustainable forests for constructing buildings, rather than high quality, solid wood. Using engineered wood has the potential to reduce construction costs, carbon emissions and energy consumption as well as improving building airflow, heating and cooling.	Building Science and Technology	University of Tasmania	FH Management Pty Ltd Trading as Valley Workshop	TAS	1
36110	Industry Researcher	<b>Preventing and managing diseases in walnut trees</b>	Walnut disease costs the Australian walnut industry more than \$10m annually. This project will improve our understanding of what causes these diseases, how they develop and how they are spread so they can be more effectively prevented and managed.	Horticulture	The University of Queensland	Stahmann Webster	QLD	1
36111	Industry Researcher	<b>Understanding fungi's role in soil health and agriculture production</b>	This project will study how beneficial fungi boost soil organic carbon. By tracing carbon through soil-plant-fungi networks, the research will uncover how these fungi enhance soil	Agriculture, Environmental	The University of Queensland	Loam Bio	QLD	1



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			carbon storage capabilities. The goal is to develop better farming practices that improve soil quality, increase crop growth, and help mitigate climate change, benefiting the wider Australian community.	and Related Studies				
36179	Industry Researcher	<b>Improved stab-resistant personal protective equipment</b>	Personal Protective Equipment (PPE) is essential to protect military, police, and correctional officers from serious injuries caused by knife and spiked weapon attacks. This project will develop a new method for standardised testing of stab-resistant PPE, giving Australian manufacturers more confidence in the effectiveness of their products and driving improvements in protection and useability.	Mechanical Engineering	The University of Adelaide	Armor Australia Pty Ltd (Head Office)	SA	1
36221	Industry Researcher	<b>Designing better for dementia care</b>	This project will redesign Sydney's Cardinal Stepinac Village, an aged care facility for Australia's Croation community. The redesign will better support the needs of its residents, many of whom have dementia, as well as honour the original vision of the centre as a community hub with a European village atmosphere.	Architecture and Urban Environment	University of Technology Sydney	Icon Advertising Trading as Psychological Design	NSW	1
36253	Industry Researcher	<b>Using autonomous power plant control systems on Australian naval vessels</b>	This project will explore the ways in which the Australian Navy can use unmanned power plant control systems and renewable energy sources on their vessels, increasing these vessels' performance and efficiency.	Electronic Engineering	University of Technology Sydney	Navantia Australia Pty Ltd.	NSW	1
36218	Industry Researcher	<b>Increasing construction stability on the soft soils of Australia's coast</b>	Ensuring construction stability is difficult in the very soft ground found in most of Australia's coastal regions. This project will use machine learning to improve soil vacuum suction methods as a way to speed up soil consolidation and increase soil stability for longer.	Geotechnical Engineering	University of Technology Sydney	Menard Oceania Pty Ltd	NSW	1
36191	Industry Researcher	<b>Collaborating with traditional owners to conserve a newly-discovered Australian mammal</b>	Traditional owners and the Australian Wildlife Conservancy have discovered a mammal species that was previously unknown to Australian scientists. This project provides the rare opportunity for traditional owners to collaboratively develop conservation plans for this species from the get-go, implementing a unique approach to Australia's biodiversity management.	Land, Parks and Wildlife Management	Charles Darwin University	Australian Wildlife Conservancy (AWC)	NT	1

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36144	Industry Researcher	<b>Using brain mapping and gene mutations to identify people with autism and ADHD</b>	This project will explore the apparent connection between the unique brain wave patterns of people with autism and ADHD, and specific gene mutations. It will contribute to developing new, non-pharmaceutical ways to diagnose and address these conditions.	General Medicine	University of the Sunshine Coast	TMS IP Pty	QLD	1
36074	Industry Researcher	<b>Using Australia's unique micro-organisms to discover new medicines</b>	Australia's diverse terrestrial and marine environments are home to many unique microorganisms. These microbes can produce a range of different chemical compounds with important applications in medicine, including new antibiotics and anticancer drugs. This project will take advantage of recent developments in synthetic biology and chemistry to develop a platform for large-scale production of these valuable molecules here in Australia, fuelling global drug discovery pipelines and stimulating innovative Australian research.	Microbiology	Macquarie University	Microbial Screening Technologies	NSW	1
36114	Industry Researcher	<b>Assessing the environmental impact of the production and use of natural fibres</b>	This project will help brands and consumers better understand the environmental impact of products made with natural fibres. It will allow for more accurate product labelling and comparisons between textile products so local producers are not unfairly disadvantaged by environmental regulatory requirements or consumer preferences.	Agricultural Science	University of New England	Integrity Ag	NSW	1
36108	Industry Researcher	<b>Large-scale carbon capture and storage in a gas field</b>	This project will develop a financially viable model for carbon dioxide capture and storage at the Wheatstone gas field in the Pilbara, helping achieve net-zero emissions targets and generating revenue through carbon credit markets.	Earth Sciences	Curtin University	OPES International Pty Ltd	WA	1
36209	Industry Researcher	<b>Creating a competency framework for NDIS case management providers</b>	This project will develop and evaluate a competency framework and curriculum for NDIS case management providers. This framework will ensure that providers have the necessary knowledge, skills and attitudes to successfully deliver social and economic outcomes for NDIS recipients.	Rehabilitation Therapies.	The University of Western Australia	APM	WA	

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36153	Industry Researcher	<b>Creating new seaweed fertilisers to sustainably improve soil fertility</b>	The market for fertilisers made from seaweed is expected to grow to almost \$4bn by 2025. This project focuses on developing new seaweed fertilisers to improve soil fertility particularly in arid lands in regional Australia. These cultivation businesses will be partially owned and operated by local traditional owners.	Engineering and related technologies	The University of Western Australia	Canopy Blue Pty Ltd	WA	1
36103	Industry Researcher	<b>Digitally-enabled quality measurement in Australian healthcare</b>	This project will translate a series of established indicators and measures for delivering holistic healthcare into a digital platform that GPs, other primary healthcare providers and patients can use. The platform will help improve data collection, funding models and patient outcomes.	Public Health	Western Sydney University	South Western Sydney Primary Health Network / WentWest (Western Sydney Primary Health Network / Western NSW Primary health Network	WA	1
36123	Industry Researcher	<b>Community-based approaches to dementia care</b>	Community Home Australia's unique model of person-centred, relational and community-based dementia care service will be evaluated in this project to identify ways it could be implemented in other locations.	Health	University of Canberra	Community Home Australia	ACT	
36086	Industry Researcher	<b>Creating 'green cement' from mining waste</b>	This project will investigate the potential use of slurried coal fly ash, a common waste product at mine sites in Port Augusta, as 'green cement'. This project will help reduce carbon emissions as well as help make the Australian cement and concrete industry more sustainable.	Construction Engineering	University of South Australia	Hallet Group	SA	
36076	Industry Researcher	<b>Using AI to improve the safety of CT injection machines</b>	This project will develop a way to use AI to predict when a CT-scan machine needs its injection system fixed. This project will help protect patient safety and improve medical image reliability.	Computer Engineering	University of New South Wales	Imaxeon Pty Ltd (A radiology business of Bayer)	NSW	
36082	Industry Researcher	<b>Making Insurance Affordable: Risk Prevention via AI and Real-world Tests</b>	This project will apply generative AI and real-world tests to help Australian travellers access more personalised services and affordable travel insurance. It is anticipated that this	Insurance and Actuarial Studies	University of New South Wales	Cover-More	NSW	



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			framework could be applied to reduce costs of other types of insurance.					
36247	Industry Researcher	<b>Developing more accurate and efficient ways to increase concrete strength and durability</b>	This project will use machine learning to predict the best heat and humidity conditions needed for creating precast concrete, a common construction industry product, helping reduce energy waste, gas consumption and CO2 emissions.	Decision Support Systems	Victoria University	North-Vic Constructions Pty Ltd, trading as NVC Precast	VIC	
36199	Industry Researcher	<b>Increasing greenlip abalone yields in summer</b>	The abalone industry in Australia is valued at more than \$220m. In summer, however, more than half of greenlip abalone stocks can die due to the warmer water. This project will explore cost-effective ways to reduce abalone's 'summer mortality', helping the industry better adapt to the effects of climate change.	Fisheries Studies	Flinders University	Yumbah Aquaculture	SA	
36182	Industry Researcher	<b>Detecting prostate and breast cancer circulating DNA to support treatment</b>	When cancer cells break down, they release DNA into the bloodstream known as circulating tumour DNA (ctDNA). This project will develop new laboratory tests to identify ctDNA in prostate and breast cancer cases, developing non-invasive tools for detecting and monitoring tumours, guiding treatment decisions and evaluating treatment responses.	Pathology	Flinders University	GNOMIX PTY LTD	SA	

