

RESEARCH PULSE

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1. WELCOME TO RESEARCH PULSE

In this issue, we will share the first call for Internal Research Grant Scheme of Curtin Singapore and select proposals.

The scheme is designed to strategically nurture, inspire, and empower a vibrant and innovative research culture across the institution. It provides targeted, seed-level support to researchers to courageously explore bold ideas, undertake pilot or proof-of-concept studies and products, and develop the foundational evidence needed for larger funded projects.

The scheme aims to strengthen the institutional research capacity by aligning projects with the Curtin Singapore research clusters, encouraging collaborative partnerships with industry. The scheme serves as a catalyst for creativity and excellence, product development, opportunity to enable researchers to confidently experiment, publish meaningfully, and elevate the institution's overall research performance.

Thank you for your support to Research Pulse.

Best Wishes,
Curtin Singapore Research

2. INTERNAL RESEARCH GRANT SCHEME

a) Innovative Pedagogy: Leveraging Gamified Assessments and Flexible Learning

Dr. Wahseem Soobratty, Head of School - Business & Entrepreneurship

Project Overview

The Innovative Teaching Delivery Project aims to transform traditional pedagogical approaches within the School of Business and Entrepreneurship by integrating gamified assessments and self-paced learning materials into the curriculum. This initiative responds to the evolving needs of modern learners who thrive in interactive, flexible, and personalized learning environments.

This project aims to compare and select the most engaging educational technology tools such as Articulate Storyline, Adobe Captivate, or Lectora, and consequently develop engaging digital learning experiences that promote active participation, deeper understanding, and improved retention. The gamification component will incorporate elements such as points, badges, leaderboards, and scenario-based challenges to motivate learners and foster a sense of achievement. Meanwhile, self-paced modules will allow students to progress through content at their own speed, accommodating diverse learning styles and schedules.

The project will begin with a pilot implementation in selected units, followed by iterative refinement based on learner feedback and performance analytics. Ultimately, the goal is to create a scalable model that can be adopted across the School, Faculty and University.

This initiative aligns with the School's strategic priorities of pedagogical innovation, digital transformation, and student-centered learning, and supports broader institutional goals around academic excellence, flexibility, and lifelong learning.

Start date: 1 January 2026 - 30 September 2026



b) Generative AI-Based Stock Return Prediction System, Using Customized Prompts, Power Automate, and Power BI

Dr. Ronnie Soh, Senior Lecturer

This proposal presents a comprehensive plan to develop a Generative AI-based system for predicting stock returns. The solution leverages customized prompts, integrates with Microsoft Power Automate for workflow automation, and uses Power BI for real-time visualization and reporting. The goal is to enhance decision-making, reduce manual effort, and improve prediction accuracy.

Financial markets are highly dynamic, and accurate prediction of stock returns is critical for investors and analysts. Traditional models often fail to incorporate unstructured data such as news sentiment and macroeconomic trends. Generative AI, combined with customized prompts, offers a powerful approach to interpret complex data and generate actionable insights.



The objectives are

- Leverage Generative AI to predict stock returns using structured and unstructured data.
- Design customized prompts for context-aware predictions.
- Integrate Power Automate for seamless data ingestion and workflow automation.
- Use Power BI for interactive dashboards and performance monitoring.

Start date: 5 January 2026 – 31 May 2026

c) Student Learning Support Platform (SLSP)

Dr Jaideep Chandran, Head of School - School of Science, Technology and Engineering

This proposal outlines the development of a comprehensive, AI-enhanced Assessment and Learning Management Platform designed for universities and higher education institutions.

The system leverages Artificial Intelligence to streamline assessment design, automate summarization for lecturers, and deliver adaptive, personalised learning experiences for students.



1. System Overview

The platform functions as an integrated solution that combines assessment management, learning diagnostics, and AI-assisted teaching tools into one secure, scalable ecosystem.

The system consists of four main modules:

1. AI-Driven Assessment Management
2. Prerequisite & Diagnostic Testing
3. AI Summarization and Productivity Tools for Lecturers
4. Analytics, Insights & Smart Learning Features

2. Objectives

- Improve the quality, fairness, and integrity of university assessments.
- Enable lecturers to save time through AI-supported automation.
- Ensure students possess the required foundational knowledge before advancing.
- Support data-driven teaching and learning interventions.

Start date: 5 January 2026 – 31 May 2026

d) A Comprehensive AI-driven Academic Integrity System to Safeguard Authentic Student Learning

Professor Arun Patil, Director of Learning & Teaching

Universities worldwide face growing challenges from contract cheating services, generative AI misuse, plagiarism, and collusion. Currently, at Curtin Singapore, the academic misconduct process is applied as per the policies and procedure and as outlined in the flowchart (Appendix 1). Current systems rely heavily on plagiarism detection and manual suspicion, which makes them reactive, inconsistent, and easy to bypass and most importantly the plagiarism or misconduct detection can be done only after the submission and at the marking/ assessing stage.

We propose a new standard academic integrity system that integrates authorship analysis, behavioural monitoring, provenance tracking, and active AI-driven checks. This system moves beyond “plagiarism detection” to become a proactive safeguard of authentic student learning. This proposed system will adopt the important principle and philosophy of “prevention better than cure” and provide opportunities to students to minimise the attempts of academic misconduct. Furthermore, the system will save the time of “confirmation check” process by minimising the requirements of confirmation checks and validity of the misconduct attempts. It will also save students’ time spend on confirmation checks as well as stress level going through the process. This system goes beyond plagiarism detection to become a complete academic integrity ecosystem. By combining authorship profiling, behavioural monitoring, and active AI-generated checks, it raises the standard for integrity protection in higher education. It is scalable, fair, proactive, and deterrence-focused, the kind of solution universities need as academic misconduct grows more sophisticated.

Start date: 21 November 2025 - 20 June



e) Strategic Generative AI Automation and Integration to Improve University Research Workflows

Dr. Goh Kiah Mok, Senior Lecturer, Director of Research

This proposal outlines a strategic plan to integrate Generative AI (Gen AI) into university research workflows. The plan leverages insights from advanced prompting techniques, AI agent development, and ethical AI practices to enhance research productivity, collaboration, and innovation. By adopting Gen AI tools and frameworks, the university will accelerate literature reviews, automate data analysis, and enable intelligent research assistants, positioning itself as a leader in AI-driven academic excellence.



Generative AI is transforming the research landscape by enabling automation, creativity, and advanced reasoning capabilities. Universities can harness these technologies to streamline repetitive tasks, improve research quality, and foster interdisciplinary collaboration. This proposal presents a comprehensive strategy for embedding Gen AI into research processes, supported by robust ethical guidelines and technical infrastructure.

The objectives are

- Deploy Gen AI tools for literature review and summarization.
- Automate data analysis and visualization using AI-driven workflows.
- Develop AI-powered research assistants through platforms like Microsoft Copilot Studio.
- Train faculty and research students in advanced prompt engineering techniques.
- Ensure compliance with ethical AI standards and data governance policies.

Start date: 5 January 2026 – 31 May 2026

f) Attitudes and Perceptions of the Use of Generative Artificial Intelligence (Gen AI) in Higher Education: A Cross-Campus Study Between Singapore and Perth

Dr Carolyn Koh, Senior Lecturer/Director of External Engagement

Advances in generative artificial intelligence (Gen AI) present both significant opportunities and notable challenges for academia. It is often described as a double-edged sword: when applied responsibly, its benefits are extensive, but misuse can lead to detrimental outcomes (Chan & Hu, 2023). Additionally, studies advocate for the responsible incorporation of Gen AI tools, which can bolster academic writing and research capabilities, thus reinforcing the need for students to develop AI literacy, which encompasses understanding its functionalities and implications (Kanont et al., 2024).

However, studies indicate that students frequently succumb to the temptation of using Gen AI as a substitute for learning rather than as a tool for skill development (Chan, 2023; Saylam et al., 2023). Instances of academic misconduct such as submitting AI-generated assignments or relying on voice translation applications for presentations are increasingly common across universities (Oc et al., 2024). This trend suggests a widespread inability to distinguish between responsible and irresponsible use (Zhou & Schofield, 2024). While students readily acknowledge the advantages of Gen AI, they often overlook the ethical and practical challenges associated with its responsible application. (Zhou & Schofield, 2024).

The aim of this research is to examine undergraduate and postgraduate students' attitudes and perceptions toward the use of generative artificial intelligence (Gen AI) at two Curtin University campuses. We have chosen Curtin Singapore where the adoption of approved GenAI applications is currently in its infancy against that of the students at Curtin Perth which is an Adobe Creative Campus where application of approved GenAI is encouraged. The findings will enable us to conduct a comparative study that identifies students' attitudes and perceptions of GenAI and the key factors that influence responsible versus irresponsible use of Gen AI at the two campuses. Understanding these factors will enable educators to design targeted training programs and provide guidance that promotes ethical and effective use of Gen AI among students. Additionally, the insights gained could inform Gen AI developers, offering valuable input for the design of future tools that better support academic integrity and learning outcomes.

Start date: 2 January 2026 - 31 December 2026

3. RADIO ASTRONOMY RESEARCH

Bijaya Luitel, Research Assistant, Curtin Institute of Radio Astronomy (CIRA), Curtin Singapore

What does the sky look like at the longest wavelengths of light? What skills do you need to study the universe using radio waves? To broadly answer these questions, Curtin Singapore hosted a workshop on Radio Astronomy research. We had 6 participants join us from different educational levels (3 in secondary school, 2 in high school and 1 post-PhD) in the week of December 8 – 12. We had Associate Professor Clancy James join from the Curtin Institute of Radio Astronomy (CIRA), a node of the International Centre for Radio Astronomy Research (ICRAR). The main theme for this iteration of the workshop was Fast Radio Bursts (FRBs), which are powerful transient bursts of radio emission that release an equivalent amount of energy that the Sun produces in a few days in a matter of milliseconds¹.

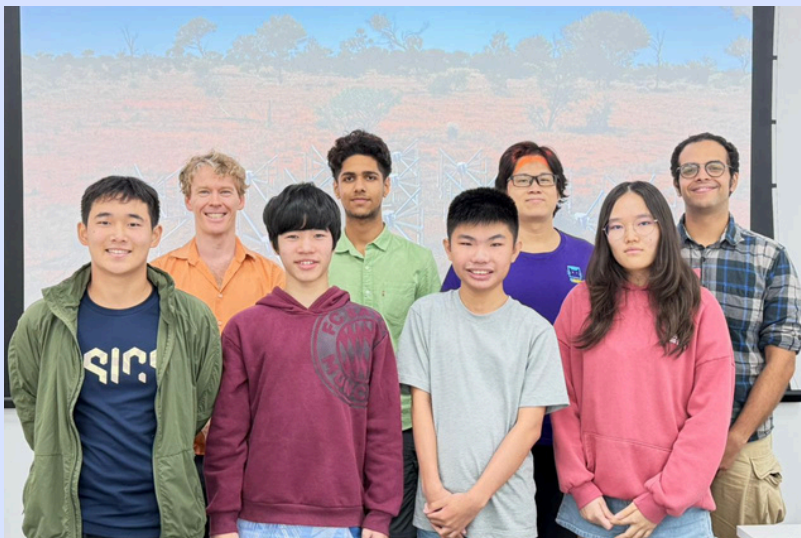
The first three days were designed to provide background and build the relevant pre-requisite skills. Radio Astronomy research today requires extensive knowledge of programming and data analysis skills. Therefore, we spent a considerable amount of time practising python through tasks designed to showcase the different focus areas in research, such as analysing images, doing survey statistics and fitting models. We also spent some time learning about different physical concepts needed to understand FRBs, which include the polarisation of light, dispersion in the Interstellar/Intergalactic medium and scintillation. Students were then given data acquired using the Australian Square Kilometre Array Pathfinder (ASKAP) telescope, which they had to analyse. Each student was given data pertaining to at least one FRB. On the final day, the students had to present their findings.



¹ Petroff, Emily, J. W. T. Hessels, and D. R. Lorimer. "Fast radio bursts." *The Astronomy and Astrophysics Review* 27.1 (2019): 4.

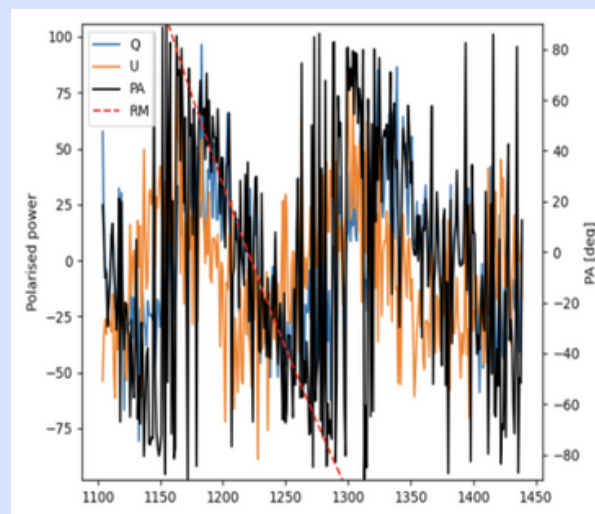
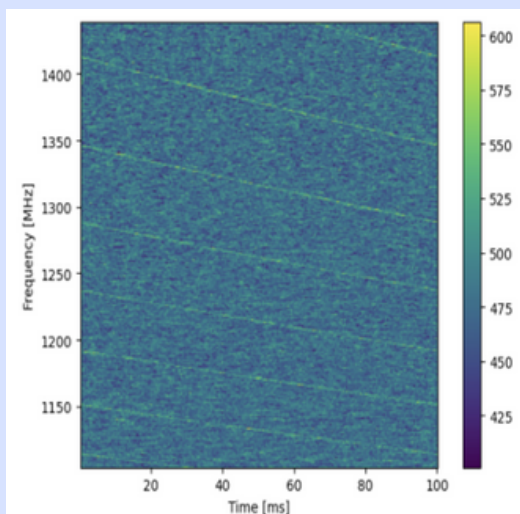
We also spent one day at the Science Centre Singapore, which was an opportunity for the students to see the exhibitions there as well as do some observations of the Sun using telescopes with filter specially designed to safely observe the surface of the Sun. Thankfully, the Sun peered through the clouds and we managed to see sunspots on the surface. The Science Centre Observatory also possesses an inflatable planetarium, which we utilised to watch a short documentary on the sky in radio.

All in all, the week was hectic and edifying for everyone. If you are interested in astronomy more broadly, are curious to see what sorts of computational and data analysis skills are necessary to do astronomical research, want to keep tabs with future ideas for workshops/events or just want to have a chat, please feel free to email to bijaya.luitel@curtin.edu.sg or just send your email to be added to a mailing list.



Left: A picture with the participants taken at the end of the workshop.

Right: Our workshop poster showcased Centaurus A, a nearby galaxy that is extremely bright in radio wavelengths and contains lots of interesting features.



A couple of plots made by one of the students, Rohit, who attended the workshop. It shows how the data on the left can be processed to obtain a signature FRB plot on the right.

4. CALL FOR PAPERS

Special Issue Call for Papers: How Methods Can Advance Theory in Management Research, Proposal submission deadline: 30 April 2026.

<http://www.socadms.org.uk/special-issue-call-for-papers-how-methods-can-advance-theory-in-management-research/> or
<https://tinyurl.com/48bax5w6>

International Engineering, Technology, Business and Health Education Conference IETBHEC'26, Singapore | 28 - 30 June 2026.

<https://ietbhec.com/>

5th Vietnam Symposium in Entrepreneurship, Finance, and Innovation (VSEFI 2026) will be held in Hanoi, Vietnam, on 2 - 3 July 2026.

<https://vsefi2025.sciencesconf.org/>

