

AI-ENABLED ASSESSMENT MARKING HACKATHON

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The Increasing Importance of Collaboration Between Universities And External Partners

• We Live in a Fast-paced World of Ideas:

Universities: Can identify the next big idea!

Companies: Can see early signals of what's going to be the next big opportunity!

Commercialising Good Ideas:

"Australia is a world leader in the quality of research but falls behind when it comes to commercialising good ideas and collaborating with industry,"

Minster for Education, Simon Birmingham

• Sustainable Socioeconomic Development:

Growth that brings benefits and opportunities equally across all segments of society.

What we did?

Big Data Society: We organized Hackathons, Workshops, Seminars, ...



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What we did?

Data Analytics Lab: We secured funding for 31 research students (PhD/MRes), 10+ interns, and 6 postdocs.

DATA ANALYTICS RESEARCH LAB MACQUARIE UNIVERSITY, SYDNEY, AUSTRALIA

Our mission is to significantly improve people's lives through our work in Data Science, Predictive Analytics and Big Data!



Organizing, Curating and Analyzing Personal &

Social Data.

Developing learning systems that perform

automatic mental-health-disorders detection

om social networks. Applications include Suicide Prevention and (School) Bullying Detection.



Organizing, Curating and Analyzing Business

Data







Storytelling with Data: Intelligent Narrative Discovery.



Enabling IoT in Policing

Cognitive Assistance to help students and teachers.

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https://data-science-group.github.io/

What we did?

AIP Research Centre: We secured Over \$8 million Research Funding



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AI-ENABLED ASSESSMENT MARKING HACKATHON

https://data-science-group.github.io/BigDataSociety/Hackathon/2021-07/



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IMPORTANT AIMS OF EDUCATION

"Education breeds confidence. Confidence breeds hope. Hope breeds peace."—Confucius

Help children and young people to:

- Achieve their full potential;
- Be prepared for independent living;
- Contribute to their community and society;
- Experience economic and environmental wellbeing;
- Enjoy learning and achieving.
- Develop a healthy and positive disposition to life;

21ST CENTURY - FUNDAMENTAL CHALLENGES AND OPPORTUNITIES FOR EDUCATION

- Technology is transforming our lives
 - o Artificial Intelligence
 - o IoT and Smart Entities
 - o Data Science
 - o Cloud
 - 0 ...
- The skills needed in the future will be very different from those needed today.
- The Myth of Jobs That Don't Exist Yet !!

Opportunities:

Automation:

- Automated Marking
- Creating and/or Contextualizing Rubrics
- Identify Similarity: Assessment2Vec (https://link.springer.com/chapter/10.1007/978-3-030-78270-2_68)
- Summarization: Summarizing Assessment Content/Results/etc.
- ...

Cognitive Assistants:

- Facilitating the Marking Process
- Improving quality of feedback for assisting instructors to prevent students' misunderstandings

• ...

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Goals:

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- Reducing instructors' workload in online and large-scale learning environments.
- Increase the number of time educators spends actively engaging with students.
- Improving the quality of feedback.
- Identifying essential indicators such as Knowledge, Performance (e.g., Cognitive, Affective, and Psychomotor indicators), and skills (e.g., decision-making and problem-solving).

HACKATHON CHALLENGES

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Challenge 1: STEM Units (Science, Technology, Engineering and Mathematics) Marking

This challenge will be algorithmic and will target participants with a Computer/Data Science background. Participants will develop a learning system to perform an intelligent STEM assessment marking.

- Your solution should focus on:
 - Reducing instructors' workload in marking STEM assessments.
 - Innovations in Automation and/or Cognitive Assistants (Please check slide #8)
- Dataset:
 - A Math Dataset is available on the hackathon website.

Challenge 2: non-STEM Units (e.g., English, Arts, Humanities) Marking

This challenge will be algorithmic and will target participants with a Computer/Data Science background. Participants will develop a learning system to perform an intelligent non-STEM assessment marking such as marking an Essay (a short piece of writing on a particular subject such as English, History, and Geography).

• Your solution should focus on:

- Reducing instructors' workload in marking non-STEM assessments.
- Innovations in Automation and/or Cognitive Assistants (Please check slide #8)
- Dataset:
 - The Essay Dataset is available on the hackathon website.

Challenge 3: Project-based Units (e.g., Internship) Marking

This challenge will focus on building a software prototype (UI) and will target participants without a coding background. Participants will develop a prototype for a system to help instructors in monitoring the activities of students during the internship and help in evaluating the knowledge, skills, and performance of students during the internship.

Your solution should focus on:

- Reducing instructors' workload in marking Project-based Assessments.
- Innovations in Automation and/or Cognitive Assistants (Please check slide #8)

JUDGING CRITERIA

Criterion		Score (1-10)	Weight	Subtotal
	Novelty and creativity		2	
Innovation	Good solution		2	
(idea)	Key parameters		1	
UI/UX	Technical/UI/UX innovation		2	
	Creativity		2	
	Execution (demo)		1	
Business Value	Business model		1	
	Market need		1	
	Feasibility		1	
	Pitch		2	
SCORE			/150	

You can Download the JUDGING CRITERIA from the hackathon website.

WHAT IS NEXT?

Who can attend ?

- 1. Each group member should register individually online. Please check the Registration link in the next Section.
- 2. Register your group on the first day of the hackathon (12th July 2021), at the venue.
- 3. At least one member of each group, *MUST* currently residing in Australia.
- 4. Team Members *MUST* register with their Organization/University email address.
- 5. Teams *MUST* be between 2 to 5 people: students and professional.
- 1. Register Your Team (on 12 July before 2pm): LINK
- 2. Submitr your Solution (on 13 July before 11am): LINK

13 July (11am to 2pm) : Judges will select the top 3 teams for each challenge (we have 3 challenges)
13 July (2pm to 4pm): selected teams will present their solution LIVE.
13 July (4pm to 5pm): Announcing Winners and Prizes

All the above information and documents are available on the hackathon website: <u>https://data-science-group.github.io/BigDataSociety/Hackathon/2021-07/</u>

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Thank You and Good Luck!

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Let us take the "External Research Partnership" in Australia, to the next level.

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