

CITRENZ 2023

COMPUTING AND INFORMATION TECHNOLOGY RESEARCH AND EDUCATION NEW ZEALAND

27th – 29th September 2023

Unitec – Te Pūkenga
Auckland

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About CITRENZ

CITRENZ was formed as an organisation in 2010, as a result of an expansion of the national advisory committee on computing qualifications (NACCQ), which dates back to 1988.

CITRENZ has supported academic staff in several different ways, such as workshops, panels, research seminars, assessment of prior learning, moderation, the publishing of a separate academic journal, and by organising an annual conference. The philosophy of CITRENZ is the encouragement and support of new, emerging, and established researchers, while encouraging excellence and academic discourse.

This is the 14th annual CITRENZ conference, and the theme this year is *Collective Intelligence: Exploring Mahi Kotahitanga in Computing*.

Conference Organising Committee

Conference Chair: Susan Bennett, Unitec

Programme Chair: Dr Hamid Sharifzadeh, Unitec

Sponsorship and Publicity Chairs: Dr Bashar Barmada & Dr Masoud Shakiba, Unitec

Poster Chairs: Dr Guillermo Ramirez-Prado, Unitec and Alison Clear, EIT

Finance Chair: Victoria MacLennan, ITP NZ

Registration and Web Chair: Christan Pianta, ITP NZ

Local Arrangements Chair: Angela Hunt, Unitec

Technical Committee Members:

Dr Emre Erturk, EIT

Dr Hamish Smith, Otago Poly

Dr Iman Ardekani, Unitec

Dr Eltahir Kabbar, Unitec

Dr Lei Song, Unitec

Dr Soheil Pour, Unitec

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Conference Programme

Time/Day	Wednesday 27 th September	Thursday 28 th September	Friday 29 th September
9.00- 9.30		Tour of Unitec Building 108 (Bldg 180 Te Puna Events Kitchen)	
9.30- 10.30		Keynote #2- Ian Edwards (SAS) (Bldg 180 Red Lecture Theatre)	Special Interest Group (180-2044)
10.30- 11		Morning Tea & Posters A (Bldg 180 Te Puna Events Kitchen)	Morning Tea & Posters B (Bldg 180 Te Puna Events Kitchen)
11.00- 11:30	Registration at Conference Venue (Bldg 180 Te Puna Events Foyer)	Panel #2- There, to Here, to Where? (180-2045)	Special Session #2- An AI Mystery (180-2045)
11:30- 12:30	Powhiri & Welcome (12 noon) (Bldg 178 Marae)	Paper Presentations #2 (180-2044)	Paper Presentations #5 (180-2044)
12.30- 1.30	Lunch (Bldg 177 Wharekai)	Lunch (Bldg 180 Te Puna Events Kitchen)	Lunch (Bldg 180 Te Puna Events Kitchen)
1.30- 2.00	Opening Address (Bldg 180 Red Lecture Theatre)	Panel #3- Toi Mai (180-2045)	Keynote #3- Teresa Pollard (Bldg 180 Red Lecture Theatre)
2.00- 3.00	Keynote #1- Ian McLoughlin (Bldg 180 Red Lecture Theatre)	Paper Presentations #3 (180-2044)	Closing Address & Prizegiving (Bldg 180 Red Lecture Theatre)
3.00- 3.30	Afternoon Tea & Posters A (Bldg 180 Te Puna Events Kitchen)	Afternoon Tea & Posters B (Bldg 180 Te Puna Events Kitchen)	
3.30- 4:00	Panel #1- GenAI and Educational Integrity (180-2045)	Special Session #1- Talking Carvings (180-2045)	
4:00- 5:00	Paper Presentations #1 (180-2043)	Paper Presentations #4 (180-2044)	
5.00- 6.00	Sponsored Cocktail Party (Bldg 180 Te Puna Events Kitchen)	Networking Opportunity	
6.00- 7.00		Conference Dinner- Mahi Kotahitanga Theme (Offsite)	
7.00- late			

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Day 1 – Wednesday 27 September 2023

Keynote #1

Venue: Bldg 180– Red Lecturer Theatre

Time: 2.00– 3.00 pm

Title: Made in University: Preparing for a Career in Industry

Speaker: Professor Ian McLoughlin, Singapore Institute of Technology, Singapore



Abstract: Work in industry is highly dissimilar to study in a tertiary education institute, and yet the latter is the traditional route to get to the former. While there will always be some industry skills that higher education cannot effectively impart, there are many ways in which we can improve industrial relevance in tertiary education. In this talk we explore some of the main ones, including the tension between what a university or higher education provides and what industry wants, and aim towards better addressing those aspects through assessment, work patterns, expectations, and feedback. However, the world does not stand still, so we will also explore some of the big questions in the world today relevant to computer science and engineering and extrapolate what the future might hold for us all.

Speaker's Bio: Professor McLoughlin has published over 250 papers, has 13 patents and 4 books with Cambridge University Press and McGraw–Hill, in areas of speech/audio AI, signal processing and embedded systems. He was a co–founding PI of a National Research Foundation (Singapore) funded Research Centre of Excellence in 2009 (\$150m), and to date has received personal research funding of over \$20m from sources such as Huawei, Google, National Medical Research Council, AI Singapore, Ministry of Education (of Singapore, China, and New Zealand) and Innovate UK. He is a Chinese Academy of Sciences President's Fellow, was recipient of 100 talent funding from Anhui Province in 2014, was a UK Royal Society partner in science in 2016 and is a Fellow of the IET. He has been a full professor for more than a decade and served as Head of School in the UK for 5 years and cluster director for InfoComm–Technology (equivalent to a Dean) in Singapore Institute of Technology for the past three years. In 2021 he was listed among the “top 2% Scientists in the world” according to Stanford University.

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Day 2 – Thursday 28 September 2023

Keynote #2

Venue: Bldg 180– Red Lecturer Theatre

Time: 9:30–10:30 am

Title: Curiosity inspires. Education empowers.

Speaker: Ian Edwards, SAS Australia/New Zealand, Australia



Abstract: Curiosity inspires. Education empowers. The SAS Global Academic Program exists to connect Industry and Academia and power Analytical Capability and Innovation. Around the world, SAS partners with education institutes to design and develop programs that encourage interest in STEM and build a future analytical, digital & technology enabled workforce. Because education gives each new generation the power to change what's possible.

Speaker's Bio: Ian Edwards is the Head of SAS ANZ's Academic Outreach Strategic Program and is responsible for leading the program the purpose of which, is to "Connect Corporate Australia/New Zealand and Academia to power Analytical Capability and Innovation". Ian leads a program that is founded to support and promote the learning of analytic concepts and curriculum across higher education to:

- a) support the development of student knowledge and experience of technology and analytics to solve real world business problems,
- b) empower educators to teach the next generation data scientists,
- c) bridge the gap between academia and SAS customers, to meet both the corporate needs and the demand for analytical and data science skilled employees.

The SAS Academic Outreach program aims to promote the study and use of STEM based learning to open a first career door in Data Science and Business Analytics, promote the use of analytics such as AI and Machine Learning across corporate Australia and foster SAS, Academia, and SAS Customer partnerships to drive innovation.

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Day 3 – Friday 29 September 2023

Keynote #3

Venue: Bldg 180– Red Lecturer Theatre

Time: 1:30– 2:30 pm

Title: The digital transformation of Te Pūkenga

Speaker: Teresa Pollard, Te Pūkenga, New Zealand



Abstract: An in-depth look at Te Pūkenga's large scale digital transformation, the importance of partnerships and the challenge and opportunities of generative AI.

Speaker's Bio: Teresa Pollard (Ngāpuhi, Ngāti Kahu ki Whangaroa and Ngāti Kauwhata) is Pourangi Matihiko |Chief Digital Officer at Te Pūkenga. She has over 20 years' experience in the technology sector spanning Singapore, New York, and Aotearoa New Zealand leading large and multi-purpose digital teams. Prior to joining Te Pūkenga Teresa held several leadership roles at Datacom including, most recently, Head of Strategic Partnerships/Vendor responsible for all key Technology Partnerships and relationships across Datacom. Prior to this, Teresa held key roles at Microsoft and New Zealand Trade & Enterprise. Outside of her role, Teresa is on the Middlemore Hospital Foundation Board, WNT Investments Board and has a passion for supporting training and learning in Digital/technology skills within New Zealand prisons and is a key advocate for encouraging more Māori and Pasific to join the digital sector.

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Panel Sessions

Panel #1

Venue: Bldg 180- Room 2045

Date: Wednesday | 3.30- 4.00 pm

Title: Generative AI and Educational Integrity

Panellists:

- Dr Jocelyn Williams, Manager Te Puna Ako (Teaching and Learning), Unitec Te Pūkenga
- Jeremy Briggs, e-Learning Specialist Teaching & Learning Coach, Wintec Te Pūkenga
- Carroll Irvine, Manager Digital Learning, Northtec Te Pūkenga
- Dr Vickel Narayan, Senior Lecturer in Digital Learning, Institute of Education, Massey University
- Dr James Oldfield, Manager Digital Learning, Unitec Te Pūkenga

Panel #2

Venue: Bldg 180- Room 2045

Date: Thursday | 11.00- 11.30 am

Title: There, to here, to where?

Panellists:

- Susan Bennett, Head of School, Computing Electrical and Applied Technology, Unitec Te Pūkenga
- Mary-Clair Proctor, Head of School, Innovation, Design and Technology, Whitireia and WelTec Te Pūkenga
- Michael Andrews, Acting Head of School, Digital Technologies at Manukau Institute of Technology Te Pūkenga

Panel #3

Venue: Bldg 180- Room 2045

Date: Thursday | 1.30- 2.00 pm

Title: Updates from Toi Mai Workforce Development Council

Panellists:

- Maria Aka, Relationship Manager
- Flauí Muaulu, Relationship Manager
- Jayendra Chhana, Qualifications Systems Product Analyst
- Nicola Cameron, Qualifications Development Facilitator

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Special Sessions

Special Session #1

Venue: Bldg 180- Room 2045

Date: Thursday | 3.30- 4.00 pm

Topic: ‘Talking Carvings’: What does this mean for Educational Marae Wintec Te Pūkenga or Māori Communities?

Speakers:

Hamiora Te Momo, Wintec Te Pūkenga

Associate Professor Oliver Helena Fiona Te Momo, Massey University (Albany)

Abstract: The intersection between the Digital Ecosystem and mātauranga Māori are emerging in the education sector. The knowledge that binds this intersection can be united by Māori history and digital technology. This binding can be explained through Māori Cosmology in the art of carving, for example “Ruatepukepuke might have brought back to this world a far greater prize – talking poupou!”. The reference to talking poupou opens a pathway for ideas such as how can mobile augmented reality achieve cultural sustainability. Current studies have primarily relied on geo-located, sensor driven, and/or code scan systems from public historical sites, landmarks, and museums. Storytelling is usually in the form of links, videos, texts, photos, and/or audio as viewable augmented reality annotations for mobiles. Very few have attempted to apply these approaches to restricted sites like the marae that is a sacred cultural site for the indigenous people of Aotearoa New Zealand. Moreover, literature questioned whether the usage of annotations for storytelling were interactive, or merely a means to navigate users around a site. This presentation investigates the possibility of GPS and machine learning object classification for pouwhenua on the marae. It proposes an immersive interaction by superimposing augmented reality objects on whakairo to narrate conversations and storytelling as if “carvings are talking” to afford an anthropomorphic quality. The concept of ‘Talking Carvings’ as a teaching tool contributes to the enhancement of mātauranga Māori in Aotearoa New Zealand society. With the current trends in primary and secondary schools to advance Māori knowledge Te Pūkenga has an opportunity to expand growth in this development. The practical implementation on how this contributes to educating staff and students is to be discovered. This presentation is a step forward in working towards achieving advancement in mātauranga Māori.

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Special Session #2

Venue: Bldg 180- Room 2045

Date: Friday | 11.00- 11.30 am

Topic: An AI Mystery

Speakers: Professor Martin Carroll, DCE Academic and Operational Lead, Unitec and MIT Te Pūkenga

Abstract: Mystery seldom reveals its secrets in advance!

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Presentations

Paper Presentations #1

Venue: Bldg 180- Room 2043

Date: Wednesday | 4:00- 5:00 pm

Each presentation 12 minutes + 3 minutes Q&A

1. Assessment Validity in the Era of AI Generative Tools
Eltahir F Kabbar (Unitec); Bashar Barmada (Unitec)
2. Predicting learning outcomes in an online learning platform
Ying Bai (Wintec); Michael F Bosu (Wintec); Diab Abuaiadah (Wintec)
3. Embracing the use of Generative AI in a First Year Information Systems Course
Angela Martin (University of Canterbury International College); Trevor Nesbit (University of Canterbury)
4. Charting the Course: A Framework for Integrating Industry 5.0 Technologies into Higher Education – A Case Study in Cybersecurity Education
Amr Adel (EIT)

Paper Presentations #2

Venue: Bldg 180- Room 2044

Date: Thursday | 11.30 am- 12.30 pm

Each presentation 12 minutes + 3 minutes Q&A

1. Professions in the data analytics job market – Australia and New Zealand
George Huang (Federation University Australia); Emre Erturk (EIT); Farhad Mehdipour (Otago Polytechnic)
2. Most Needed Technologies and Skills for Tech Jobs on LinkedIn
Athavaloshan Thirulingam (AUT); Sarita Pais (AUT)
3. Identifying Challenges with Unifying Information Technology (IT) Qualifications within New Zealand Institutes of Technology and Polytechnics: Project Proposal
Dipendra Ghimire (Ara); David A Weir (Ara); Bernard Otinpong (Ara)
4. Embedding Mātauranga Māori in a Computing Courses: A Case Study
Abha Chitalia (Unitec); Simon Dacey (Unitec); Gerard Lovell (Unitec); Lei Song (Unitec); Bashar Barmada (Unitec)

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Paper Presentations #3

Venue: Bldg 180- Room 2044

Date: Thursday | 2.00- 3.00 pm

Each presentation 12 minutes + 3 minutes Q&A

1. Teacher Capability Development at Unitec- Te Pūkenga: A Case Study
Abha Chitalia (Unitec); Diana Ayling (Unitec)
2. Recommendation of Topics and Practical Labs to Teach Semantic Web Subject to Current Bachelor of Computing Systems
Daniel T Dang (EIT)
3. Mobile Similarity matrix-based anomaly detection for mobility behavior in call center agents
Ambreen Memon (WITT)
4. The Challenges of TinyML Implementation - A Literature Review
Riya Adlakha (Unitec); Eltahir F Kabbar (Unitec)

Paper Presentations #4

Venue: Bldg 180- Room 2044

Date: Thursday | 4.00- 5.00 pm

Each presentation 12 minutes + 3 minutes Q&A

1. Use blended HTML-CSS-JS Semantic to implement Web Accessibility Principles
Daniel T Dang (EIT)
2. Can hDAS produce tailored instructional design methods, for the design of technology-based VET interventions? - work in progress
Todd Cochrane (NMIT)
3. Assessing Web Application Security Through Vulnerabilities in Programming Languages and Environments
Thomas Desmond Kerr-Smith (MIT); Sreenivas Sremath Tirumala (MIT); Michael Andrews (MIT)
4. Recreating goto in Python; how and why
Carl Cerecke (NMIT)

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Paper Presentations #5

Venue: Bldg 180- Room 2044

Date: Friday | 11.30- 12.30 am

Each presentation 10 minutes + 2 minutes Q&A

1. A Pilot Study of Using ChatGPT in the First-year Programming Assignment
Minjie Hu (WelTec); Tony Assadi (WelTec and Whitireia); Hamid Mahtoeian (Whitireia Polytechnic)
2. ChatGPT – another tool or a new collaborative project team member?
Robert A Nelson (Otago Polytechnic); Samuel Mann (Otago Polytechnic); Ruth Myers (Otago Polytechnic)
3. Study of conference presentations by novice and expert presenters in Computing
Farnaz Rajabi Mehr (Unitec)
4. A W-WRAITEC Model for Enhancing International Students' Writing Academically at Post-graduate Level
Minjie Hu (WelTec); Tony O Assadi (Whitireia); Marta Vos (Whitireia)
5. A Chitchat on using ChatGPT for Cheating
Sreenivas Sremath Tirumala (MIT); Chris Mayhew (MIT)

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Posters

Poster Sessions A

Venue: Bldg 180– Te Puna Events Kitchen

Date: Wednesday, 3:00– 3:30 pm & Thursday, 10:30– 11:00 am

1. S360 UI/UX Development
Rommel Agudo (Ara); Robert Oliver (Ara); David A Weir (Ara)
2. AMF–Sec Validation Scenario for Allied Telesis Labs
Flynn Hansen (Ara); Ian Patterson (Ara); David A Weir (Ara)
3. Bitstack Marketing Website
Bryden Joe (Ara); Christopher Bartlett (Ara); David A Weir (Ara)
4. Creation and updating of Regression Test Suites
Jasmin Vidal (Ara); David A Weir (Ara)
5. A Malware Analysis for Inde Technology
Christine Albertson (Ara); Peter Edge (Ara); David A Weir (Ara)
6. Full–Stack Mobile App Development for re:Yesterday
Mark Reyes (Ara); Amitrajit Sarkar (Ara Institute of Canterbury); David A Weir (Ara)
7. Visualising Content: Shifting from Written to Visual Communications
Guy Smith (Ara); Amitrajit Sarkar (Ara Institute of Canterbury); David A Weir (Ara)
8. Developing a Virtual Training Environment for Trimble
Benjamin Hunt (Ara); Bernard Otinpong (Ara); David A Weir (Ara)
9. New Brighton Catholic and Te Aratai Secure Access
Arron Alford (Ara); Phillip Roxborough (Ara); David A Weir (Ara)
10. Erewhon Cloud Modernisation for Jade
Alysha Ellwood (Ara); Amitrajit Sarkar (Ara); David A Weir (Ara)
11. Microsoft Teams Telephony Solution
Christian O'Fagan (Ara); Phillip Roxborough (Ara); David A Weir (Ara)
12. SD–Wan Reporting Revamp
Stella Bauer (Ara); Phillip Roxborough (Ara); David A Weir (Ara)

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Poster Sessions B

Venue: Bldg 180- Te Puna Events Kitchen

Date: Thursday, 3:00- 3:30 pm & Friday, 10:30- 11:00 am

1. Test Automation for Wellnomics
Joery Van Wel (Ara); Dipendra Ghimire (Ara); David A Weir (Ara)
2. Implementation of a Well-architected AWS Control Tower
Jackson Goulden (Ara); Bernard Otinpong (Ara); David A Weir (Ara)
3. Challenges and Opportunities of Microservices Implementation
Dhanushka Kohombange (Principal Consultant); Eltahir F Kabbar (Unitec)
4. Developing Automated UI Testing for Ara ICT Division
Daniel Wild (Ara); Luofeng Xu (Ara); David A Weir (Ara)
5. Automation Developer for Sustainability 360
Will Russ-Hofmans (Ara); Luofeng Xu (Ara); David A Weir (Ara)
6. Geospatial Asset Detection AI
Alec Pentecost (Ara); Luofeng Xu (Ara); David A Weir (Ara)
7. Set Up GUI Scenario Duplicate for Release Test
Kunihito Uemura (Ara); Eddie Correia (Ara); David A Weir (Ara)
8. VirtuAra - Virtual Orientation Tour
Dawid Potocki (Ara); David A Weir (Ara); Luofeng Xu (Ara)
9. WanderSearch Canterbury Website Redesign
Laura Buist (Ara); David A Weir (Ara); Luofeng Xu (Ara)
10. My Neonatal Place Project
Erica Li (Ara); David A Weir (Ara); Luofeng Xu (Ara)
11. Christchurch Women's Hospital Neonatal Intensive Care Unit Mobile Application
Ethan Burton (Ara); David A Weir (Ara); Luofeng Xu (Ara)
12. Developing an App for Canterbury Neonatal Services
Hayden Roche (Ara); David A Weir (Ara); Luofeng Xu (Ara)

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