

IP4 monthly videocalls

This page provides a schedule of talks, and also PDFs of presentations, at the monthly IP4 calls.

21 November 2023

10:30am to 4:00pm

Agenda/Kaupapa Take

Program:

The workshop runs from 10am through 4pm, held alongside [IEEE ISGT-ASIA 2023](#) (In-person, open to ISGT-ASIA 2023 attendees). Attached with the [new sletter](#).

Date and time

Tuesday, 21 November 2023 · 10am - 4pm NZDT

Location

- Science center, 303-G15, 23 Symonds Street, City Campus

About this event

9:30am to 10:00 am **Welcome and Opening with morning tea.**

10:00am to 10:30am **Overview and Updates of IP4**

1. Overview of IP4 - Assoc. Prof. Nirmal Nair
2. Brief updates of IP4's Yearly activities, progress and updates

10:30am to 12:00pm **Panel session: Renewable Distributed Energies and Electric Autonomous Transportation to seismic resilience**

- Extended Morlet Wavelet-Based FIR Phasor Estimation Using Fake Samples – Ph. D Xin Liu ([PDF](#))
- Integrated telecommunications and electricity assessments for response to natural disasters – Ph. D Eric Sauvage ([PDF](#))
- Grid Integration of E-mobility in a wireless way – Dr. Yuan Liu ([PDF](#))

12:00pm to 13:30pm **Lunch**

13:30pm to 15:00pm **Panel session: Technologies of Smart Cities and Real-Time Sensing to seismic resilience**

- Machine learning and artificial intelligence for hazard resilience -- Assoc. Prof Kevin I-Kai Wang
- Social Human-Robot Interaction Resilience -- Dr. Ho Seok ([PDF](#))
- Automated and Data-driven Infrastructure Management Using Emerging Technologies – Dr. Yang Zou ([PDF](#))

15:00pm to 15:15pm **Afternoon tea**

15:15pm to 15:45pm **General discussion and close of this workshop**

- Plans for the year 2024.
- Strategy for attracting applications for 2024 IP4 masters and PhD applicants.
- Inviting new researchers to IP4 and upgrading to AI

16:00 - 19:00 **Join ISGT Asia 2023 opening session and Wonder Project evening with Welcome Drinks** <https://ieee-isgt-asia.org/>

19 September 2023

10:30am to 12:00pm

Agenda/Kaupapa Take

- Feedback on QCAM 2023
 - IP4 presentation to International Science Advisory Board by Nirmal and Garry, Presented by Nirmal ([PDF](#)).
 - Thanks to Kevin, Raj, Kristin, Yang, Marion, Rizki and Jason for their posters and active engagement.
 - Prof Nirmal left QCAM to Christchurch for **New Zealand Energy Excellency award**, a fantastic achievement after 2-year journey with **So lar Zero** ([link](#))
- IP4 will have its **last meeting for the year** (Workshop style, hybrid (on-line and in-person)) on **21st November** alongside **ISGT-Asia 2023** ([link](#)) in Auckland
 - Details to follow in coming weeks which will include planning session for 2024.
 - Food and complimentary registration for the welcome day can be supported. Travel will have to be borne by attendees.
 - Opportunities to present the IP4 Topics and others alongside the ISGT conference welcome possibility.
 - A discussion session for leveraging funding will be planned in the afternoon, in-person only.
 - To discuss with Yuan and Nirmal about the availability in presentation.

- Garry will help with Smart ideas funding leveraging within the IP4 team.
- Personnel Change in IP4 team
 - Xin left IP4 to focus on his PhD thesis write-up.
 - Jason will stay for one more year focusing on AI research.
 - New PhD Shaila came on board of IP4, and her research will focus on renewable distributed energies.
- Any other business

22 August 2023

10:30am to 12:00pm

Agenda/Kaupapa Take

- Quick self-introduction and welcome to Sameeah to the group
 - Sameeah, who got the QuakeCoRE Scholarship, will work with Prof. Kristin in Massey University.
 - Published a small number of papers before she came.
- Updates by Garry
 - Some ideas came out of the IP4 annual meeting, and machine learning and artificial intelligence workshop. We will look these opportunities could actually bid on research funds. [IP4 Annual Meeting 2023 \(QuakeCoRE IP4 Annual and Research meeting 2023\) - QuakeCoRE: The Centre for Earthquake Resilience - Confluence \(canterbury.ac.nz\)](#)
 - Contacted Als or PIs to make up the team. We've identified 4 groups, potentially 5 groups of people getting involved. Kevin and Yang will work together to put one, and one from Marian and Raj. We would like to go for smart ideas.
 - The time for submission is November.
 - The intention I would like to do this is because I would like to pass you my successful experience by teaching people.
 - Face-to-face meetings will be needed.
 - Work as team to get the proposal done.

- Updates by UoA

Nirmal:

- Congratulation on successful QuakeCoRE IP4 annual meeting day + Megatrend technology workshop on Machine Learning (Chaired by Prof. Kevin)
- Focus on journal paper publishing next year, deep dive into the core research topic of seismic sciences.
- Organize a flagship seminar by Prof. Kristin.
- QuakeCoRE IP4 Monthly meeting was canceled as Garry and Nirmal were attending the QuakeCoRE leadership meeting at the same time.
- Prof. Liam Wotherspoon
- Garry will present in QCAM meeting (8 slides +1/2 slides introducing the program, the slide in the end will talk about challenges and on opportunities) to International Advisory Board.
- Nirmal and Garry will to their best to pitch the best for IP4 and leverage funding opportunities.
- The leadership of IP4 may swap next year between Nirmal and Garry.
- Reshape ourselves into the integrative part of the modelling group.
- Xin will not continue IP4 project from next month. Thanks for his contribution in electricity and grid health technologies with some high-quality journal papers.
- Rizki is in her last year and will focus on PHD thesis writing up. She won a big award at the Electricity Engineers Association (EEA) Conference.
- Last QuakeCoRE IP4 meeting this year will be combined with ISGT-Asia 2023. [IEEE PES ISGT Asia 2023 – 21-24 Nov 2023 | 2023 IEEE PES Innovative Smart Grid Technologies Conference Asia \(ieee-isgt-asia.org\)](#) as we did last year with Egrid 2022. [About IEEE eGrid - eGrid2022](#)
- Automation and Transportation: automation do not mean vehicles only, can mean drones and robots.
- Sponsorship on the IEEE conference (Garry would like to do).

Yuan:

- Positioning paper presentation, including the vision, scope, methodology outcomes and facilities of all possible topics comprised by QuakeCoRE IP4.
- The work done by UoA, team Raj has been incorporated, however, the contribution from team Kristin, team Yang and team Garry are still waiting for update.
- The paper will be posted on Wiki page when finished.

Seosamh Costello

- Funding the PHD student starting in 2024, which is going to look at the intersection of transportation and electrification and looking at the resilience of the transportation network.
- Nirmal would co-supervise.
- Other items
 - Nirmal will focus on from a market angle on the transportation part (economics), a topic for postdoc position.
 - Garry would catch up with Charlotte or Liam on market signaling stuff.
 - The work done by UoA, team Raj has been incorporated, however, the contribution from team Kristin, team Yang and team Garry are still waiting for update.
 - The paper will be posted on Wiki page when finished.
- QCAM 2023 IP4 Poster Presentations (<http://www.quakecore.nz/wp-content/uploads/2023/08/QCAM23-ProgrammeBooklet-21August23.pdf>)

85 Extended Warning Window: A P-wave based Community-Engaged Earthquake Early Warning System kumar, C., Prasanna, R., Holden, C., Stephens, M., Punchihewa, A., Tan, M	Chandra
86 CRISiSLab: Advancing Resilience through Innovative Technology for Disaster Management Tan, M., Prasanna, R	Cui, A.,
87 CrowdQuake: Earthquake Early Warning using IoT and Deep Learning Y.	Kwon,
88 Enhancing resilience - interdisciplinary machine learning research in QuakeCoRE , Mourat, P., Vorster, C., Ahn, H., Liu, Y., Ye, X., Nair, N., McDonald, G	Wang, K
89 Feasibility of LPWAN (Low Power Wide Area Network) based communication solutions for earthquake early warning (EEW) and building /infrastructure monitoring systems	
	Prasann
a, R., Adikari, K., Holden, C., Punchihewa, A., Stephens, M., Drummond, P., Ravishan, D., Chandrakumar, C	
90 A Web Application to Map Disaster Impacts from Social Media Posts Stock, K	Price, L.,
91 AHP Analysis for Disaster Hazard Mapping to Optimize Solar and Wind Farm Site Selection , R., Nair, N	Rahayani
92 Unleashing the Potential: AI at the Edge of Distributed EEW Network D., Prasanna, R., Hudson-Doyle, E	Ravishan,
93 Understanding technology adoption of an earthquake early warning system through a continuance intention model nell, L., Valentin, A., Prasanna, R., Becker, J	Tan, M., Vin
94 Hierarchical Federated Learning with Social Context Clustering-Based Participant Selection for Resilient Internet of Things Applications 95 Intelligent and Data-driven Infrastructure Inspection and Management ir, N., McDonald, G	Ye, X. Zou, Y., Na
<ul style="list-style-type: none"> Any other business 	

20 June 2023

10.30pm to 4.00pm

QuakeCoRE IP4 annual research meeting and Technology Megatrends Workshop on Machine Learning workshop (recorded video is available [IP 4 Monthly Meeting - Zoom](#))

Agenda/Kaupapa Take

9:50am~10.00am Welcome and opening

10:00am~10.30am Morning tea

10:30am~12.00pm QuakeCoRE IP4 annual meeting

- Quick introductions for attendees (name, organization, and interest areas)- all attendees
- Overview of IP4's past half year activities, progress and updates -Dr Garry McDonald and Assoc. Prof. Nirmal Nair (10mins)

Gary M:

a. Overview of IP4: Four areas: electricity centre, emerging transportation systems, smart cities, evaluation of emergent technologies

b. For those new to IP4, go through the website and look at all material in IP4 [IP4: Harnessing Disruptive Technologies for Earthquake Resilience - QuakeCoRE: The Centre for Earthquake Resilience - Confluence \(canterbury.ac.nz\)](#)

c. A focus for our IP4 team is to build research programs not within the QuakeCoRE environment but take some senior leads and help them take on challenges in other research platforms including Marsden's, smart ideas and endeavour.

d. July 7th, report successes on research including Phd students' finish.

e. 29/8 to 1/9 QuakeCoRE Annual General Meeting registration (AGM)-Napier memorial hall, PhDs prepare a poster with supervisors' name on it to get successful registration-no funding for travelling and accommodation, now sources would look into. Funding is available for AI.

f. Science Advisory Board (SAB) will go to AGM this year.

g. July 21th, please attend the Te Hiranga R QuakeCoRE's Seminar Series. **A matter of life and death: enhancing our understanding of life-safety risk in earthquakes.** - **Nick Horspool**. All seminars are recorded and will be available on the QuakeCoRE YouTube channel <https://www.youtube.com/c/quakecorenz> soon after.

Nirmal N:

Brief introduction of IP4

- Started from 2019, an interdisciplinary research program from the Centre of Research Excellence (QuakeCoRE) on the earthquake resilience.
- Gary: comes from industry, research organizations; Nirmal: comes from a typical background, engage closely with industry stakeholders and interested in disciplinary research.

2022 Annual report went through:

- a. All positions will be investigated end of the next year.
 - b. One big achievement for IP4 is integrated E-grid Conference with Technology Megatrend on Machine learning
 - c. IP4 Annual research meeting 2023
 - d. IP4 Annual meeting 2024 will be the same time next year.
 - e. Reach out to people from International Science Advisory Panel
 - f. Recorded publications (smart city technology), posters and people with different positions
- Funded activity update by UoA: Assoc. Prof. Nirmal Nair, Assoc. Prof. Kevin Wang, and Dr. Ho Seok (20mins)
 - a. More papers are coming.
 - b. Rizki is at her last year now. Eric will do his PYR soon. Yuan and Nirmal are applying for Smart idea funding application.
 - c. Questioning on whether these papers related to seismic?
 - d. A person needed on well-being and consequence modelling.
 - e. No PhD applications from our end this year
 - Funded activity updated by Massey University: Prof. Kristin Stock and Prof. Raj Prasanna. (20mins)

Raj S:

- a. P-wave based alerting projects, completed in one year.
- b. One journal paper published and One paper under review in New Zealand journal of Geology and Geophysics on false alerts and miss alerts based on P-wave detection algorithms.
- c. One paper near completion on ground motion sensor technology.
- d. The outcomes are adopted sensors and IoT technologies in seismic scenarios, which is aligned with IP4
- e. **Crisis lab** website refreshed. [Home | CRISiSLab](#)

Marion T:

- a. promoted as an AI last year.
- b. Working on the project of "Technology adoption of systems for earthquake risk and resilience management". A paper finished. Developing a smart idea proposal.
- c. Benefits for funding and visibility for young scholars with PhD degree could apply for the funding (Around \$10000) from QuakeCoRE
- d. Have a chat with Paul.

Kristin S:

- a. Lydia (final year undergrad student) will be back on the project from next month and should be joining the annual meeting in Napier with Prof Kristin (both registered anyway).
 - b. Sameeah is still waiting for visa approval. She has been given an extension until 1st September to take up the scholarship.
 - c. Someone will be recruited to work on the project in the second semester.
 - d. An offer from QuakeCoRE for seminar series (August), Nirmal will reach out to discussion the seminar.
- Self-introduction of Dr. Yang Zou and his VR presentation
 - A quick go-through of IP4 position paper by Yuan- on vision, scope, methodology and outcomes of the program, in future, facilities will be added as well.

12.00pm~1.30pm Lunch

1.30pm~1.40pm Machine Learning workshop opening, Chaired by Assoc. Prof. Kevin Wang, recorded video is available from [IP4 Monthly Meeting - Zoom](#)

1.40pm~2.05pm Chris Vorster, Artificial Intelligence for structure engineering

2.05pm~2.30pm Phil Mourot, AI for climate impacts: application in flood risk

2.30pm~2.55pm Ho Seok Ahn, Social Human Robot interaction resilience

Slides will come soon.

3.00pm~3.20pm Break

3.20pm~4.00pm Panel discussion: Paving a more resilient future with Machine Learning technologies, recorded video is available from [IP4 Monthly Meeting - Zoom](#)

23 May 2023

10:30am to 11:30pm

Agenda/Kaupapa Take

- Welcome from Yuan
- Updates by Garry
 - The application for RfP, international funding and scholarship is still under progressing, which has not finished.
 - Small amount of applications this time. Will keep group updated.
 - Attend the Te Hiranga R QuakeCoRE's Seminar Series. Details of the monthly seminars can be found here <http://www.quakecore.nz/2023-seminar-series/> and a reminder with more information about each seminar will be sent out prior to the seminar. Time: 10am-10.45 am (30 min presentation followed by questions); Zoom: Join from PC, Mac, Linux, iOS or Android: <https://canterbury.zoom.us/j/400612265> (Password 389905); Additional Information: Information on specific seminars is available here <http://www.quakecore.nz/2023-seminar-series/>. All seminars are recorded and will be available on the QuakeCoRE YouTube channel <https://www.youtube.com/c/quakecorenz> soon after.
- Updates by UoA

Nirmal:

- Quarterly report submitted end of April.
- A couple of journal papers accepted. (PHD: Jason*1 (IoT), XL*1 (renewable energy))
- Questioning about emerging technologies related to seismic?
- Renewable energy part: 3 PHDs involved (Rizki: Solar, Xin: PMU, Eric: Communication), IoT part: 2 PHDs (Jason and Kitty)

Kevin:

- Two points of the June workshop day: 1) show the industry what AI we are doing and what they are interested in: 2) how our PHDs engage in this area.
- Confirmation of a couple of attendance from industry
- Continuing working on the detailed plans and arrangement.

Yuan:

- Congratulations to Ho Seok for AI confirmation
- Confirmation of the **venue** of workshop (**402, 314-390 Khyber Pass road, New market campus, the University of Auckland**)
- **Registration and rough agenda** are available on wiki page: [IP4 Annual Meeting 2023 \(QuakeCoRE IP4 Annual and Research meeting 2023\) - QuakeCoRE: The Centre for Earthquake Resilience - Confluence \(canterbury.ac.nz\)](#)
- Involvement of Dr Yang Zou [Yang Zou Profile | University of Auckland](#) in QuakeCore IP4
- AR/VR will be involved in this programme.
- Positioning paper – Position ourselves of the program in the right place, a pictorial paper of what IP4 is.
- Confirmed speakers: Phil Mourou and Yang Zou.
- Updates by Raj
 - P-wave based alerting projects, completed in one year.
 - One journal paper published and
 - One paper under review in New Zealand journal of Geology and Geophysics on false alerts and miss alerts based on P-wave detection algorithms.
 - One paper near completion on ground motion sensor technology.
 - The outcomes are adopted sensors and IoT technologies in seismic scenarios, which is aligned with IP4
 - **Crisis lab** website refreshed. [Home | CRISiSLab](#)
 - Focus on the funded project and keep the research item clear
 - Congratulations to Marion for AI confirmation.
- Updates by Kristin
 - User interface developed the impact information
 - Final year student Lydia will come back join the project in next semester on the usability and further capabilities with industry
 - A presentation on GEMA (Geospatial Emergency Management Association) Using geographic information for disaster management.
 - Annotation data collection using mechanical Turk refine the methods for extraction of different elements of data from the text.
 - One master will be needed
 - Sameeah is waiting for visa approval.
 - One paper one pipeline due in October and one on relation and recognition in the end of year.
- PHD Individual updates
- Any other business

18 April 2023

10:30am to 11:30pm

Agenda/Kaupapa Take

- Welcome from Yuan
- Individual updates
 - Rizki - How solar systems work during resilience and network degradation.
 - Eric - Wait for the reply from the industry to find the potential gaps in the response.
 - Yuan - Intergration of EVs to Grid through V2G/G2V wireless technologies in disasters.
- Updates by Garry
 - A series of EOIs is open all due on the 5th of May, including:
 1. The EOI for AIs (Associate Investigators) is also open, any interest? note that this requires endorsement by Nirmal and me. Actually, Nirmal and I must submit this.

- 2. The EOI for IAs (industry affiliates) is also open, if anyone has a suggestion then please contact Nirmal or I
- 3. The EOI for PhD and master's scholarships is open, please read the eligibility criteria carefully and contact Nirmal and I if you have any queries.
- 4. The EOI for International Delegates is open - with the goal of reconnecting with international collaborators post COVID19 (contact Nirmal or Garry or the QC office for more detail)
- There is also a call for the Inclusivity and Diversity committee membership - apply online, due 31st March.
- The next QC Seminar is Matt Gerstenberger on the NSHM, noting that this is on the 12th of May at 10am (i.e., no April seminar)
- Any other business

28 March 2023

10:45am to 12:00pm

Agenda/Kaupapa Take

- Welcome from Yuan
- Updates by Nirmal
 - Shared what the program is about, especially the research questions over 7 years.
 1. Renewable Distributed Energy (Xin)
 2. Smart Cities (TBC)
 3. Electric Autonomous Transportation (JC - Autonomous Transportation (IoT), not link to Electric yet)
 4. Potential fourth disruptive technology (machine learning? Robotics?)
 - A PhD may need to walk the way through.
 - Develop an agenda for EAT in IP4
 - Planning for positioning paper before June 2023
- Updates by Garry
 - Raj presented the last QC Seminar, which went well - good attendance, including by members of IP4
 - A series of EOIs is open all due on the 5th of May, including: -
 1. The EOI for AIs (Associate Investigators) is also open, any interest? note that this requires endorsement by Nirmal and I. Actually, Nirmal and I must submit this.
 2. The EOI for IAs (industry affiliates) is also open, if anyone has a suggestion then please contact Nirmal or I
 3. The EOI for PhD and master's scholarships is open, please read the eligibility criteria carefully and contact Nirmal and I if you have any queries.
 4. The EOI for International Delegates is open - with the goal of reconnecting with international collaborators post COVID19 (contact Nirmal or Garry or the QC office for more detail)
 - There is also a call for the Inclusivity and Diversity committee membership - apply online, due 31st March.
 - The next QC Seminar is Matt Gertensberger on the NSHM, noting that this is on the 12th of May at 10am (i.e., no April seminar)
- Individual updates
 - Rizki - How solar systems work during resilience and network degradation.
 - Eric - Wait for the reply from the industry to find the potential gaps in the response.
 - Xin - Algorithm and application: application - PMU based Islanding detection in failure hierarchy in seismic events.
 - Yuan - Intergration of EVs to Grid through V2G/G2V wireless technologies in disasters.
 - Kevin - Continue working on the plan of workshop in June.
 - Kitty - Work on a conference paper on adaptive normal detection for time series data and experiment.
 - Jason - One journal paper got accepted and finished a review paper. Work with Eric.
 - Ho Seok - Two ongoing projects, one is Mori sign languages reorganization, and waiting for smart idea application.
 - Kristin - Creating a training data set for relation extraction.
 - Marion - Working on a proposal.
 - Raj - a student P waves and S waves detections for earthquake Earling warning. An alternative communication mechanism.
 - Chantujan - Two papers. First is to find the gap, second is valuing the correctness of the algorithm.
 - Minh - got an internal funding from UoA, simulating human behavior in emergency evacuations.
 - Juan - Gary works on a proposal. Developing a micro-economic model and submitting a paper.
 - Stafania - A multi-sectoral multi-regional fully dynamic economic model for a specific case study. A flooding case.
 - Emily - Covid models, code programming, document writing, and paper writing.
- Any other business

21 February 2023

10:30am to 12:00pm

Agenda/Kaupapa Take

- Welcome from Yuan
- Update from IP4 since last November meeting by Nirmal
 1. Promotions of Profs and associate Profs ([Recent Academic Promotions within the QuakeCoRE Community - QuakeCoRE](#)), Prof Seosamh Costello (UoA), Associate Profs Kristin Stock (MU), Chin-Long Lee (UoC), Raj Prasanna (MU); Kevin Wang (UoA)
 2. Scholarship Awarded. (<https://protect-au.mimecast.com/s/MKMICQnMx5CYOx2GlxP6BoZ?domain=quakecore.us10.list-manage.com>) S ameeah Hameed, PhD: *Geo-spatial Situational Awareness of Disasters Through Social Media Text and Authoritative Data*. Supervisors: Kristin Stock, Raj Prasanna
- Successful Request for Proposal (RfP) Projects for IP4. ([2022 RfPs - QuakeCoRE](#))
 - Raj Prasanna, (Massey University), Project title: **Feasibility of LoRa (Long Range) communication architecture for earthquake early warning (EEW) and building/infrastructure monitoring systems**. RfP Project Funding: \$50,960

- Marion Tan, (Massey University), Project title: **Technology adoption of systems for earthquake risk and resilience management**. RfP - Proposal Development Grant: \$10,500
- Kevin Wang, (University of Auckland), **Technology Megatrend: Machine Learning Workshop**. Coordination Mechanism Funding: \$5,000
- QC technology Megatrend- Machine Learning plans by Kevin
 - A concrete idea about machine learning in IP4 is still under planning (KW)
 - Face-to-face meeting: June Monthly meeting. Industry people will be involved.
 - End of year meeting: November monthly integrated with ISGT 2023 (NN)
 - Consult Chin-Long, Minh, Ho Seok, and Raj and organize an event this year to promote machine learning in the QuakeCoRE community.
- IP4 supported project update and plans for the year by Kristin
 - Project updates (<https://geocollaboratory.massey.ac.nz/quaketext/>)
 - [A Pipeline for Geospatial Situational Awareness of Disasters Through Social Media Text](#). – Hameed
 - [QuakeText: Mapping Earthquake Impacts from Text](#). - Sophie Francis
 - Annotating and Extracting Disaster Impacts from social media with Named Entity Recognition - Two masters (Sophie Francis) are working on this. Aim to get as much information as the emergency responders could respond after viewing the map.
 - Relation Extraction to identify locations of disaster impacts from social media text – Kalana.
 - Lydia- developed the interface to display the data obtained from the tweets.
- Projects updates UoA Yuan/Nirmal

Team in UoA:

Kitty Li, Completed PYR and started her second year; **Xin**: research on renewable energy; PYR in 2 or 3 months; the research needs to be related to the seismic side. **Rizki**: research on the solar stuff on Indonesia's minister of foreign affairs and trades.

Yuan:

- Organizing biweekly meetings with Team UoA: (NN, KW, HS + 5 PHDs)
- Annual reports + Publications Sheets are done for submission to QuakeCoRE
- QuakeCoRE IP4 workshop with interdisciplinary topics (machine learning, transport, etc.) will be on 20/06/2023.
- QuakeCoRE IP4 monthly meeting (20/11/2023) will be integrated with international IEEE PES ISGT ASIA 21-24/11/2023.
- Things related to Journal publications.
- 2 Ph.D. presentations each time.

HS:

- One PHD will be involved in QuakeCoRE to research indoor robot navigation in several months, including on fire, fighting, or dangerous situations.
- IP4 supported project update and plans for the year by Raj.
 - Highly recommend Ph.D. students to involve in the JCDDR, whether directly or aligned, or indirectly doing earthquake-related work.
 - Thanks to IP4 for supporting the ISCRAM sessions.
 - Updates about the project: P-wave S-wave intensity estimation, extending the warning window, and developing quick, early learning.
 - Phase 1 (April- August 2022): understand what is happening. One ISCRAM conference paper and one journal paper were published. One journal paper.
 - Phase 2 (September 2022- April 2023): establish a P-wave detector. Several papers are about to submit. (May 2023- June 2023): previous data applied to Geonet data to look at a longer time window.
 - Phase 3 (April 2023- April 2024): how can apply P-wave in prediction.
- Updates from AC central reported by Garry

GM:

- Reviewed the previous retreats and work.
- Annual report to submit in two days.
- 20 Mar to 5 May, nominations for industry affiliates; For new scholarship rounds (yearly or two yearly), check the eligibility criteria before submission.
- Contact GM or NN, if more PhD students want to get involved.
- A new associate director is under nomination.
- 3 or 4 big challenges need to be looked at, which are still confidential at this stage. But one is cascading and quakes coincidence in seismic activity. How do we deal with ongoing seismicity across time?
- 4 or 5 different core areas for development and QuakeCoRE are coming through. They will be fundamental points, and we need to target at.
- For researchers in the beginning career, establish connectivity across them and also provide mentoring. A survey will come out.
- 3 or 4 core areas around the policy options were missing from QuakeCoRE- how we get external funding.
- Big gaps between transdisciplinary and interdisciplinary research will bring different parts for IP4. Not only look at that's happening in IP4 but look at those issues related.
- Encourage international travel across QuakeCoRE.
- Policy reforms.
- Make use of high-quality publications and research.
- Reestablish the community. Some names have been put forward. And International Science Advisory group will be attending. (Jack Baker from Stanford.)
- PhD recruitment process. Do mass rather than do similarly.

PM:

- Working in the 2nd year of a 7-year MBIE-funded project (<https://taiao.ai/>).
- Network research not only on flooding prediction but also biodiversity and different aspects of environmental issues in NZ.

- Keen on collaboration on machine learning for hazard prediction.

PD:

- The ultimate test for the research on seismic resilience is the adoption and utilization in real life.
- Any other business

29 November 2022

10:00 – 12:00 Joint QuakeCoRE IP4 and EGRID Technology Megatrends Workshop on Machine Learning

<https://egrid2022.com/day-1/>

13:00pm to 14:30 pm

Agenda/Kaupapa Take

- **Plan for 2023 and meeting schedule**
 - To send out schedule/calendar for 2023.
 - To inform people about **QCAN conference**.
 - To look for **joint projects QuakeCoRE and RfP**
 - Need to think about **the dates for funds applications (Marsden, MBIE endeavors, and smart ideas)**
 - To talk to research office.
 - To organize **a couple of workshops** during the year (AI machine learning, Future of transport, smart grid, QuakeCoRE workshop or webinar, etc.)
 - to involvement of all PhD students. **Two PhD students presenting** for each meeting in 2023.
- **External funding discussions**
 - be good to have IP4 members (more experienced) that push forward with an endeavor process each year.
 - A **sensing technology endeavor** is missing. A good idea from **Kevin** that could be further developed.
 - The need of whether to work to connect with **pure social science element**.
 - Think about **climate change, multi-events, new advances in tech** (magatrends). Research is very compartmentalized, and we are not thinking across the board.
 - Need to consider **climate change and disruption**.
 - **Robust decisions that look at multiple disruptions** happening simultaneously due to climate change and pathways to recover.
 - **Geomagnetical induced event, space data monitoring**.
 - Need **a delicate workshop in the end of June (Q2)** with an intention to start the process in **September for an Endeavour proposal**. (Garry and Nirmal: mentor regarding process for proposal writing. Functional recovery: Kevin. Kevin and Minh can contact Yuan to arrange meetings. Nicky, Kristin and Raj to get involved)
 - Research publications associated with IP4 should come through.
- **Ideation process**
 - To discuss in the workshop
- **Any other business**
 - Electrification of the network.
 - There may be a PhD student across IP3 and IP4. Also, there are funds to support one PhD student for IP4.
 - Look for someone from the council/a policy person to join IP4.
 - Kitty presenting at QuakeCoRE 2024 in her last year of PhD.

18 October 2022

11:00am to 12:00 noon

Agenda/Kaupapa Take

- Welcome
- 2022 QuakeCore RfP and PhD scholarship application
 - Closes on 21st October, 12 noon (Hard Deadline)
 - If aligned with IP4 share it in confidence with Nirmal and Garry for inputs
 - Best wishes to all applicants
- Recruitment of Research Engineer (**Starting from 1st of Nov 2022**)
- IP4 will have its **last meeting for the year** (Workshop style) on **29th November** alongside **EGRID 2022** in Auckland
 - Scheduled between **10:00 and 3pm with 9:30pm tea/coffee**
 - (**Location: Engineering Building 401 and 405 in the campus map**)
 - Wilson Car Paid Parking available across the Venue- Building number 260 in the map)
 - Starting at **10am** with IP4 Year 1 progress and update (**Physical and Online**)
 - A blended (**both physical and online**) workshop on Technology Megatrend: **Machine Learning Applications to Seismic Sciences**
 - Between **10:30 and 12 noon** (Open to EGRID 2022 attendees as well)
 - Will be extended across QuakeCore for those not in person
 - **12 to 1pm** (Lunch and **Breakout of the funded project groups** of IP4)
 - **1pm to 3pm** (Planned for only face-to-face attendees)
 - Plans for 2023 and meeting schedule
 - External Funding discussions (MBIE, Marsden etc.)
 - Ideating new IP4 projects for 2023 RfP round
 - Strategy for attracting applications for 2023 IP4 Masters and Phd Applicants

- Industry engagement for IP4 (2023-24)
 - International engagement for IP4 projects (2023-24)
 - Inviting new researchers to IP4 from (2023-24) and upgrading to AI
- Poster opportunities to share IP4 posters alongside the EGRID Trade Exhibit opening
- QuakeCore **Free Registration** will be initiated by **3rd of November** and our Research Engineer will be in contact
- Other ideas welcome to make efficient use of this first year-end face-to-face meeting of IP4 research team
- Attendees can stay for the EGRID opening panel and trade-exhibit opening panel starting at **4pm**
- PhD Presentations from **Kitty Li** and **Duncan Grimson**
- Any other business

27 September 2022

11:00am to 12:00 noon

Agenda/Kaupapa Take

- Welcome
- Feedback on QCAM 2022
 - IP4 Accomplishments Recognized ([State of QC 2021-22](#))- [Slides 33 to 35](#)
 - Thanks to Robert, Hamish and Andrew for the IP4 Panel
 - Thanks to Kevin, Rizki, Eric, Raj and Kristin for their posters and active engagement
- Update on Recruitment of Research Engineer
- IP4 will have its **last meeting for the year** (Workshop style) on **29th November** alongside EGRID 2022 in Auckland
 - Details to follow in coming weeks which will include planning session for 2023
 - Food and complimentary registration for the welcome day can be supported. Travel will have to be borne by attendees
 - Opportunities to share the IP4 Posters and others alongside the EGRID conference welcome possibility.
 - A workshop for QC2 Coordination Mechanism: Technology Megatrend Capability Area on Machine Learning planned
 - Other ideas welcome to make efficient use of this first face-to-face meeting
- 2022 QuakeCore RfP and PhD scholarship Round now open
 - Additional information is available on website [here](#) including:
 - RfP Guidelines ([link](#))
 - Scholarship Policy ([link](#))
 - Application Forms and budget templates for RfP Projects and Scholarships
- PhD Presentation from **Martyna Wala**
- Any other business

23 August 2022

10:30am to 11:30 (Could be 12 noon if 3 speakers)

Agenda/Kaupapa Take

- Welcome
- Update since our last meeting
 - Technology Megatrend Capability Areas: Machine Learning and AI: IP4 researcher engagement
 - Appointment of IP4 Research Engineer update (<https://jobs.smartrecruiters.com/TheUniversityOfAuckland/743999838021170-research-engineer>)
 - [Position Description](#)
 - Potential IP4 workshop Wellington and Auckland Hub alongside in <https://iscramasiapacific.com/> (TBC)
 - IP4 **November 22 meeting possibility to be shifted to 29 November** and have a QC-IP4 track alongside international conference <https://egrid2022.com/> (Possibility of submitting paper as well-couple of tracks fashioned around QC and NSC-RNC area of interest; **Deadline for papers submission 10th of September**)
 - [EGRID_Call_for_Paper_Panel_31_July_Final.pdf](#) (Accepted and presented paper will be indexed in <https://ieeexplore.ieee.org/Xplore/home.jsp>)
 - Any paper published since 1 July 2021 for reportage during QCAM (**Slide due COB today**)
- QCAM 2022 IP4 Presence (<http://www.quakecore.nz/wp-content/uploads/2022/08/QC-AM-Programme-22Aug22web.pdf>)

Posters

97 An Ecosystem of Low-cost Sensors toward Earthquake Early Warning: An Earthquake Early Warning System (EEWS) with multi-sensor capability
Chanthujan Chandrakumar, Raj Prasanna, Max Stephens, Caroline Holden, Amal Punchihewa, Julia Becker, Seokho Jeong, Marion Lara Tan

98 QuakeText: Mapping Earthquake Impacts from Text
Sophie Francis, Kristin Stock, Raj Prasanna, Christopher Jones, Emma Hudson-Doyle, Niloofar Aflaki, Nishantha Medagoda, Richard M owl, Aaron Tregoweth, Gavin Treadgold, Aaron Waterreus

99 A holistic conceptualisation of risk and resilience
Tom Logan

100 Novel Earthquake Early Warning Sensor Architecture Driven by Low-Cost Ground Motion Sensors
Raj Prasanna, Chanthujan Chandrakumar, Rasika Nandana, Caroline Holden, Amal Punchihewa, Julia Becker, Seokho Jeong, Nandika Liyanage, Danuka Ravishan, Rangana Sampath, Marion Lara Tan

101 GIS-AHP Analysis of Optimal Solar Site Locations based on Disaster Risk Assessment
Rizki Rahayani, Nirmal Nair

102 Evaluating the seismic resilience of the fixed communication systems
Farukh Latif, **Eric Sauvage**, Nirmal Nair

103 Realising interdisciplinary machine learning research in QuakeCoRE
Kevin Wang

- QCAM IP4 Plenary Panel "**Existing, emergent and future harnessing of disruptive technologies for transformative seismic resilience**"
 - **Hamish Avery** Horses, water, but drinking? My experiences in introducing disruptive resilience technology
 - **Robert Cardwell** Creating impact-based investment cases for resilience: Next generation socio-economic evaluation using integrated, spatially explicit and dynamic modelling of seismic events
 - **Andrew Renton** Grid resilience in a de-carbonised future
- Any other business

28 June 2022

11:00am to 12:00 noon

Agenda/Kaupapa Take

- Welcome
- Update since our last meeting
- Feedback on the 17 May 2022 and Action Items
- End of year 1 and reporting of work done
 - Publications (Directly or Aligned)
 - Poster for QCAM 2022
 - Any other internal report
 - Public Visibility Events or News
- Any other business

17 May 2022 (10 to 15:30pm)

QuakeCoRE IP4 Research Whanga

Engineering Boardroom at the University of Auckland (Room 401-511), 20 Symonds Street

On-line available for 10.00-11.30 agenda items.

Agenda/Kaupapa Take

Morning tea ~9.30-10.00

1. Welcome and introductions (~10 mins)
2. IP4 Successes (~10 mins)
 - Ho Seok Ahn (University of Auckland) – Vision Mtauranga Fund [Presentation](#)
 - Nicky McDonald (MEResearch) and Christina Magill (GNS Science) – Deep South
 - Pls, Als, and industry affiliates
 - Recruitment of Research Assistant
 - Other QuakeCoRE activities
3. Round-robin update – 2-mins per person verbal update on IP4 related work (~45 mins)
4. Distributed Infrastructure and Sensing Society through IoT research agenda
 - Nirmal Nair + Kevin Wang presentation + researchers + PhD students [Presentation](#)
 - Research Agenda positioning paper
 - **6 x PhD**

Lunch ~12.15-13.15

5. Consequence modelling (~45 mins)
 - Garry McDonald presentation + researchers + PhD student [Presentation](#)
 - Agenda positioning paper – aligned to the Endeavour applications below
 - 1 x PhD
6. Electrification & autonomous transportation primer (~45 mins)
 - Seosamh Costello [presentation \(PDF\)](#)
 - Creating the research agenda
7. Leveraging funding opportunities (~45 mins)

Endeavours (Smart Ideas and Targeted Research Programmes)

- AF8 rebid (Caroline Orchiston (to be confirmed) and Garry McDonald)
- Auckland spatial planning for climate resilience (Robert Cardwell and Juan Monge)
- Renewable energy demand and societal equity (Nirmal Nair and Garry McDonald)
- Others - open discussion?

Advanced technologies?

Electrified and alternative fuels transportation?

Others – Marsden, VM Capability, etc

8. Planning for the coming year (~30 mins)

- 21st June meeting, possibly with DT4
- Sensing society through IOT case study agenda (aligned with delivery of Kristen and Raj's work)
- Electrification and autonomous transportation positioning paper

12 April 2022

11:00am to 12:00noon

Agenda/Kaupapa Take

- Welcome
- Update since our last meeting
 - Successful Applications for AI's and Industry Affiliates of QC-2
 - Non-contestable contract fund projects
 - Workshop schedule for 17 May 2022 meeting
 - Publications for reporting towards year-1 of IP4 (July 2021- June 2022)
- Deep dive into an IP4 research topic- Raj Prasanna
- Any other business

29 March 2022

11:00am to 12:00noon

Agenda/Kaupapa Take

- Welcome
- Update since our last meeting
 - Last meeting action items
 - [QuakeCore March 18 Public Seminar](#) Recording
 - Pointers/Feedback based on the questions/comments raised during that public meeting
- Deep dive into an IP4 research topic - Kristin Stock
- Any other business

22 February 2022

10:30am to 12noon

Agenda/Kaupapa Take

- Welcome
- Update since our last meeting
 - [QCAM 2021 IP4 online presentation](#)
 - [IP4 2021 QC-2 Annual Report Select Contribution](#)
 - <https://onlinelibrary.wiley.com/doi/abs/10.1111/disa.12436>
 - <https://www.sciencedirect.com/science/article/abs/pii/S0048969721050221>
 - <https://www.bulletin.nzsee.org.nz/index.php/bnzsee/article/view/1503>
 - [IP4 contestable and non-contestable funds](#)
 - [2021-22 QuakeCore PhD Scholars](#)
 - [IP4 Research Plan Approved](#)
- Feedback for future RfP and Scholarship competitive rounds
- Update on IP4 contracting
- [Upcoming- QC2 March 18 Seminar of IP4](#) (Contributions sought)
- Changes to the IP4 monthly meeting format (Check out March meeting)
- Focus areas of IP4 Leadership for 2022
- 17 May 2022, Plans for IP4 workshop blended: in-person in Auckland and online (TBC)
- Update on upcoming calls in the coming weeks (watch out for emails from QC2)
 - Call for membership/stewardship of [QC2-Coordination Mechanisms](#)
 - Call for membership/stewardship of QC2 Early-Career Research Network
 - Call for membership of AI for QC2
- Any other business

23 November 2021

10:30am to 12noon

Agenda/Kaupapa Take

- Welcome
- Introduction by some new members
- Update on QC RfP and PhD assessment
- Update on plans for first and second quarter of 2022
- Presentation: Dr Emily Harvey
- Discussions around next years meeting
- Best wishes towards first 6 months of start-up of IP4.

19 October 2021

10:30am to 12noon

Agenda/Kaupapa Take

- Welcome
- Call for RfP and PhD scholarships (<http://www.quakecore.nz/opportunities/>)
- Presentation: Dr Kevin Wang "Paving the road for the future IoT and Aml applications" ([Presentation](#))
- Presentation: Dr. Kristin Stock " Text Location Extraction Applications for Disasters and Earthquake Early Warning ([Presentation](#))

21 September 2021

10:30am to 12noon

Agenda/Kaupapa Take

- Welcome
- QCAM Dec 2021 Postponement
- Presentation: Dr Ho Seok Ahn "Robotics with AI"
- Presentation: Dr. Nadia Trent

17 August 2021

10:30am to 12noon

Agenda/Kaupapa Take

- Welcome
- Newbie introductions – name, organisation, and research interests (please jot down 2-3 point bullet points in advance)
- IP4 presence at QCAM: Plenaries, workshop and agenda setting ([2021 IP4 Workshop and Plenary Offering](#))
- Funding update
 - 2021 QC-2 RfP Project funding process and tentative calendar
 - 2021 QC-2 Scholarship round
 - Leveraged synergies with other funds aligned with IP4
 - Future funding focus areas
- Discussion around presentations for the September IP4 meeting (after QCAM)
- Presentation: Dr Juan Monge, Associate Director, MEResearch: Using graphical approaches to assessing wellbeing impacts of disruptive events through time ([Presentation](#))

26July 2021

10:30am to 12noon

Agenda/Kaupapa Take

- Welcome
- Introductions – name, organisation, and research interests
- About QuakeCoRE 2 - Nirmal
- About Integrated Programme (IP4): Harnessing Disruptive Technologies for Seismic Resilience - programme and proposed workplan- Gary
- QCAM: Plenary update and IP4 workshop and speakers
- Next steps and future meetings