



UNIVERSITY OF
AUCKLAND
Waipapa Taumata Rau
NEW ZEALAND

Centre of
Machine Learning
for Social Good

National Hui

REPORT



CENTRE OF MACHINE LEARNING
FOR SOCIAL GOOD

event on
23 June 2023

National Hui

Background

The Centre of Machine Learning for Social Good (ML4SG) is a newly established research centre at the University of Auckland. The mission of the Centre is to advance fundamental knowledge in Machine Learning (ML) and data analytics while addressing the most challenging and pressing health, environmental, and societal problems of our time. This is the first centre in Aotearoa focussing on social good by using machine learning in collaboration with domain experts as a catalyst to solve high-impact societal issues. Importantly, the centre will focus on existing social issues as the primary inspiration for research projects. The centre will design research to produce direct and meaningful social change.

Given the centre's mission, a National Hui was established to foster the collaboration required to drive real change. Various groups were invited to the Hui on the afternoon of June 23rd 2023 from 1:00-4:00pm, hosted by the University of Auckland. The Hui was an opportunity to establish relationships and engage in open conversations without any obligations or commitments. The first half of the Hui focussed on introducing the Centre and the attendees, while the second half split the attendees into four groups for group discussions.

Purpose

- To establish a set of governing principles for the centre
- To build relationships and foster collaboration between diverse groups
- To gain insight on how to effectively collaborate

National Hui

General Outcomes

The Hui brought together over thirty people from industry, research spaces, local council, government and the community. Attendees specialised in domains with meaningful social impact, including environmental, health and social issues. Hybrid attendance allowed people to join from various parts of New Zealand. This wide range of voices provided diverse insight on use of ML, and more broadly data, in solving social issues. The Hui generated good quality conversations regarding topics including data governance, ways of working and effective collaboration. Conversations did not reach the topic of governing principles, which are still to be established.

Discussions

Collaboration

What are the obstacles preventing effective collaboration between ML experts and the community?

- AI-literacy is generally low
 - ML is a tool
 - Community need experts to offer advice on how to use these tools
- Access to ML experts
 - Could we design a platform for connectivity?
- Perception of AI
 - Many people have negative view of AI

Ways of working

Different ways of designing and working on projects will have different incentives and outcomes. How best to work?

- Problem set design: Different problems can have
 - Different data types e.g., sparse, heterogeneous, spatial, temporal...
 - Different solution spaces e.g., prediction, decision making, monitoring...
- What are the goals of our work?
 - Identify the problem, and use technology to respond
 - To generate **actionable information**
- Who is the public?
 - Local change can lead to global impact
 - **Knowledge transfer across boundaries**
- Actionable solutions vs. fundamental research
 - Developing solutions typically requires using existing methods
 - Improving solutions may require us to push the boundaries

Problem areas

Many areas exist with a pressing urge for solutions to improve quality of life for many people. Could ML be useful in these situations?

- Medical triage
 - 'Gamification of humans' using limited metrics
 - ML can figure out who needs help, but how can we help them?
Staff have expertise but are limited
- Transport e.g. equitable mobility
- Predicting socioeconomic outcomes e.g. poverty reduction, housing
- Environmental problems e.g. water quality monitoring, boat tracking
- Social safety e.g. Monitoring teenagers' phones
- Mitigating ML for bad
 - Neutral content generation / filtering / political agenda

Overall themes: **community, health, environment**

Data access

Data is disjointed in NZ. How data is stored, managed and accessed is important to all groups working with data. What are context-dependent pros and cons to centralising data?

- Access
 - Centralised platforms allow easier access to data e.g. UK environmental data lake
 - **Open access to data is a force multiplier**
- Privacy & Trust
 - Important to trust the data store
 - Some sectors have substantial privacy concerns e.g. health data
 - Others do not e.g. some environmental data
- Sovereignty & Ethics
 - Who does the data belong to, where is it stored?
 - **Is the data being used to help those who it belongs to?**
 - A clinical feedback group could help develop guidelines
- Attitudes & Consent
 - Use of differential privacy for creating value without identification
 - Distrust towards data privacy leads to disengagement e.g. health
- Data standards e.g. data license

Machine learning pipelines

Could automatic pipelines increase organisational intelligence while removing the requirement for ML experts?

- Magnifying the impact of people doing good
- Easier interaction with AI systems
 - Model explainability
- Automating ethics processes with AI

Centre of Machine Learning for Social Good

Next Steps

Sensible next steps for the centre include developing a flagship project for the centre, to garner interest from potential collaborators. Relationships built during the National Hui will be maintained, by personal contacts, social media posts and other media outreach.



CENTRE FOR
**MACHINE LEARNING
FOR SOCIAL GOOD**

The ML4SG Centre Team
Yun Sing Koh (Director)
Gill Dobbie (Director)
Daniel Wilson (Director)
Olivier Graffeulle (Project Manager)
Bowen Chen (Media Manager)