Machine Learning

Building careers with technology

This micro credential in Machine Learning Fundamentals (level 5) will take students with no prior experience to a stage where they have the skills to be industry-ready upon graduation. Machine Learning (ML) is the process of building, and using, predictive models. Artificial Intelligence (AI) is the software that surrounds these predictive models while in use, allowing software applications to become more accurate at predicting outcomes.

The course will focus on the foundations of machine learning, including understanding the principles of responsible AI and how these apply to machine learning models.

QRC aligns learning and training directly to that of industry needs and requirements which provides a values outcome for learners.

Career Opportunities & Pathways

The number of Machine Learning engineers has increased tenfold in the past five years. This industry relevant micro-credential provides a pathway to sustainable employment and continues to develop 21st century skills relevant across multiple industry sectors.

Student Profile

This micro-credential has been developed to meet the needs of industry and targeted towards:

- School leavers
- Career Changers
- Current or emerging Business Professionals

"There is an acute worldwide shortage of machine learning experts and intense international competition for talent. Machine learning is the highest demand growth tech skillset globally"

QRC Micro Credential in Machine Learning Fundamentals

Level 5 / 40 Credits

Programme at a Glance

Delivered in Queenstown
10 Weeks

A graduate of this micro credential is able to demonstrate broad operational, technical and theoretical knowledge within their specific field

Course Content

Upon course completion, students will be able to:

- apply types of machine learning algorithms (including supervised and unsupervised learning)
- understand regression and classification techniques for machine learning applications
- use existing machine learning libraries to generate predictions
- construct and document datasets
- understand and apply Responsible AI and business ethics to machine learning systems
- apply and improve deep learning systems

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The aim of this micro-credential is to provide learners with foundational knowledge of Responsible Artificial Intelligence (AI), so they are able to guide AI projects to maximise benefits for iwi and communities, and to mitigate potential biases. Learners will use the key aspects of Responsible AI to understand the practical implications of AI projects, identify the people, groups and roles involved in AI systems, discuss the roles that datasets have in Responsible AI, and be able to apply business ethics to machine learning applications.

> *Data is an integral part of any digital solution. Organisations that have the ability to leverage data to solve a business problem will have a competitive edge. There is very high demand for programming skills in the Machine Learning/AI field*

QRC Micro Credential in Responsible AI

Level 5 / 10 Credits / 3 weeks

Programme at a Glance

Graduates of will be able to perform entry-level responsible AI tasks on AI and machine learning systems, both as part of a team, and independently under broad supervision.

Course Content

- The components of Responsible AI that are relevant to contemporary scenarios
- Distinguishing uses and end-users of AI systems
- Using ethics to inspect aspects of datasets
- Comparing the different roles that are responsible and accountable for an AI system
- An ethical evaluation of an AI system

QRC Micro Credential in Machine Learning Team Project

Level 5 / 10 Credits / 3 weeks

Programme at a Glance

A graduate of this micro credential is able to demonstrate and apply effective communication, collaboration, and problem-solving skills to present a responsible machine learning system

Course Content

- Understanding the relationship of Machine Learning with Responsible AI and business ethics
- Collaborating, problem solving, and communicating in teams to improve machine learning systems
- Presenting findings and results of machine learning systems to internal stakeholders

This micro-credential will provide learners with the knowledge and core technical skills in the fundamentals of machine learning. Problem solving and collaborating in teams, learners will modify a machine learning system, using the principles of Responsible Artificial Intelligence (AI) to diagnose and improve system performance for different groups of people, and apply business ethics to machine learning applications.

Entry Requirements

Applicants must have completed the QRC Certificate in Responsible AI (Level 5) (Micro-credential)

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