Faculty of Engineering
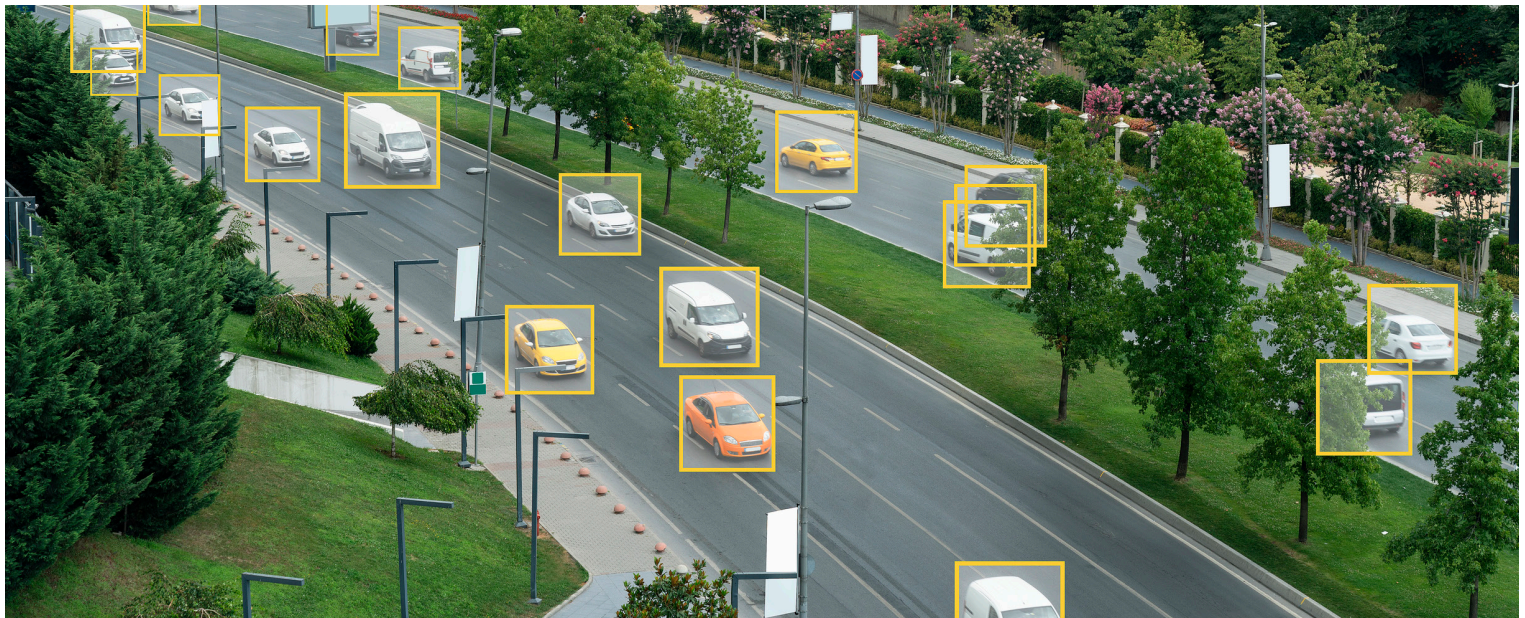## Engineering | Product Design

Collaborate

Master of Applied Data Science

We live in a world where the data we generate is growing exponentially and increasing in complexity day by day.

Are you making the most of it?

The Faculty of Engineering is looking to engage with organisations, to collaborate on projects they may not normally have time, or the resources, to consider. To help organisations with the cleaning, processing, predictive modelling, interpretation and visualisation of data.

Let us connect you with our community of students, and academics. We want you to challenge them with the projects that will help your business grow, innovate, and maximise your data, at the same time you will be helping shape tomorrow's industry and community leaders.

Becoming an industry project partner

This is an opportunity to have a student or group of students, from our Masters of Applied Data Science (MADS) degree, complete a data science project that may have been sitting on your books for some time but has not yet been started due to resource, knowledge, or constraints in your organisation.

This new degree is a conversion masters that allows students from any scientific or industry background to build on their existing experience and to develop the skill that they need to be successful data scientists in their field.

As part of this degree, students are required to work with a company (partner) to solve real world data science problems, exercising core competencies in data science while delivering a useful business outcome for the company (partner). Their project is usually done as a summer internship but the format is flexible and some students do this work during the academic year, alongside their study.

Industry Project Sponsor Facts

Cost

- The industry project does not have to be funded, although we do encourage where possible that the company (partner) offer a payment to the student for the time they work on the project, we would recommend budgeting at least $2500 for this.
- The partner will need to invest time with the student, to ensure the best outcomes for the student and the partner. This time commitment can vary from project to project. It is regularly noted by past partners that the more they engage with the student the more value they get out of the process.

Project location

- The project location is dependent upon access to information and resources. Students can complete the projects at the University of Canterbury or at the partners location. From past experience, the best outcomes have occurred when the student is located at the partners location, and has regular contact with the partner.

Project Timeline

- Final submission date for a project is: **Friday, 30th September 2022**.
- Project start date is: Mid November 2022.
- The projects typically take three months, allowing for holidays and other breaks along the way.
- The initial meeting with the company and project proposal will take place during the first week, after all students have gone through information sensitivity training.
- Project end date: Report and Presentation (to be delivered in person) 1st week in February 2022.

Project outcomes

- Students will produce a report for your company, and deliver a presentation to the group, to which you are encouraged to attend.
- Reports and presentations can be kept confidential, however, where possible these reports and presentations are delivered in front of their peers.

Contact us if you have differing needs around time-frames, or need support in identifying a project, or project outcomes.

"Consumer data will be the biggest differentiator in the next two or three years. Whoever unlocks the reams of data and uses it strategically will win."

Angela Ahrendts- Apple

Industry projects

Organisations are increasingly collecting large volumes of digital data, from personal medical histories, to socio-economic statistics, to internet trends. Data scientists are one of the newest professions to come from this demand for effective storage, maintenance, and use of 'big data'. Our students are developing the technical knowledge of statistical and machine learning methods needed to process information in a range of industries.

Data Science combines mathematics, statistics, computing, and technology innovation. Our students are studying at the forefront of modern practices and issues in the digital world, including ethics and security of data, strategy development, and statistical programming.

What could be requested as a project?

Almost anything that you want to understand better, and can identify data for, could be requested as a project. Some starting points for project ideas are as follows:

- We collect all this information for reporting, but do not get to use it ourselves. What parts of this data could be useful to us and how?

- We want to better understand the population that we are serving, and how this population differs from the wider community.

- We have anecdotal evidence of <something>, what evidence of this is there in the data?

- We offer several services; how do our clients move between them?

- How does demand for our products/services vary? And what is causing this variation (weather, time of week, time of year, sporting events)? Can we predict demand?

- We need a solution to make client history more accessible to front-line staff.

- How does our reputation change over time on social media?

- How do we recommend services and products to our customers?

- How do our clients partition themselves into different groups? Are these grouping relevant to how we market/advertise?

Types of projects that have been undertaken are:

- Predicting beehive yield using remote telemetry

- Modeling the impact of frailty on hip fractures and hospital admissions

- Classifying vegetation cover from historical satellite imagery

- Modeling university lecture space utilization using computer vision and machine learning

- Using citizen science to improve biosecurity

Projects have been carried out working in industries such as:

- Urban planning
- Geospatial machine learning
- Civil Engineering
- Asset maintenance and asset health modeling
- Accounting
- Biosecurity
- Natural Language Processing
- Stock Market Analysis

"As business leaders we need to understand that lack of data is not the issue. Most businesses have more than enough data to use constructively; we just don't know how to use it. The reality is that most businesses are already data rich, but insight poor."

Bernard Marr- Author
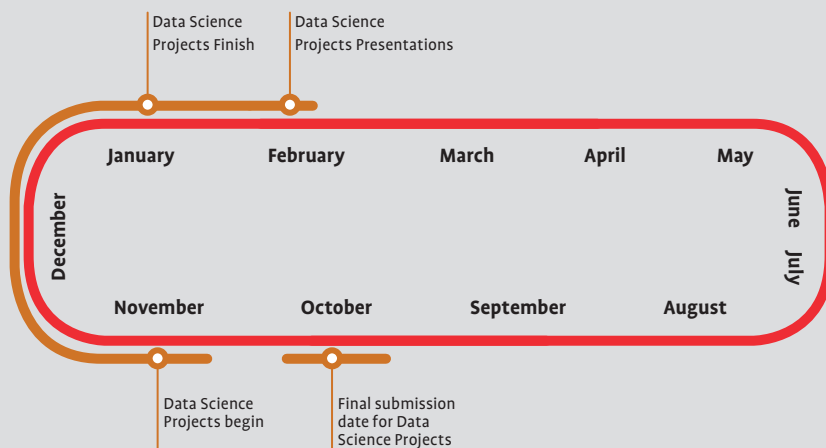
Submit a Data Science Project for 2022

If you have a project idea - half a page is sufficient at this stage (the brief can be refined later) - please email the following information to **engindustry@canterbury.ac.nz**:

- Organisation.
- Contact name and contact details for the project.
- With better understanding I will be able to ... [Improve services, manage work, meet client needs, engage the community]
- Specific questions I want answered are ...

- The project answers would best be delivered as ... [a report, a dataset, a set of instructions, an interactive tool, other]
- We expect that the project will use data from ... [our database, publicly available sources, another organisation's data]
- We would be comfortable with the project

being undertaken by ... [1 student, team of 2 students, team of 3 students, team of 4+ students]
- The project is expected to take the form of ... [off-site analytics, an internship, mixture] that is [unfunded, partially funded, funded]
- Any other information you consider relevant.

PROJECT TIMELINE:

Final submission date for an idea or project is:
Friday, 30th September 2022 for projects to be started in November 2022.

As student numbers are limited, and vary from year to year, we recommend starting this process early to avoid missing out on having your project selected.

Data Science Projects Finish

Data Science Projects Presentations

January February March April May

December

June July

November October September August

Data Science Projects begin

Final submission date for Data Science Projects

Contact us

To find out more about these opportunities contact:

Industry Engagement Team

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Web: www.canterbury.ac.nz/engineering/industry

Please Note: Information in this document may be subject to change.