Data Science/Statistics Industry Honours Project

Prediction of relative hormonal environment for all common menstrual cycle 'types' (natural and pharmaceutically modified)

- Female athletes, sports and data science
- Novel model development to support self-knowledge 'Making the invisible visible'
- Industry project with $10k stipend + travel

1. Principal Supervisor – Prof Scott Sisson

2. Associate Supervisor – Dr Sue Robson, SPLINK NZ (industry partner)

Project background:
There is a lot of inter-individual variability in health, well-being and performance among female athletes. The variability of hormonal cycles plays an additional confounding and invisible role. A major question is: How can we improve the mapping and measurement of repeating cycles within individuals, and how can repeating patterns between cycles be linked to health, well-being and performance in sports? By improving the modelling of hormone profiles can we help women discover their personal patterns and make the journey of uncovering what works best in their sporting life much easier?

A previous SPLINK NZ Honours student project completed a systematic review gathering published data on hormonal profile definitions and assumptions, for the subsequent development of a modelling framework for individual data across varying cycle types. The current Honours project will start here.

Approaches, skills and techniques that will be developed:
This Honours project will:

a. build metrics to profile low/med/high oestrogen/progesterone/testosterone levels
b. develop models and algorithms to understand and predict individual hormonal profiles
c. develop visualisation tools for at-a-glance understanding of data and model predictions

The student will work together with industry partner SPLINK NZ, collaborating with researchers to develop a model ready for validation testing and implementation into the pre-existing SPLINK Smartabase app.

Required skills or experience:
A full-time student enrolled in a UNSW Data Science, Statistics, or related Honours degree with a background in data science, statistics, computational science, mathematics or related health fields.

Stipend and travel support:
This project is part of the CSIRO Next Generation Graduate Program (NGGP) for Artificial Intelligence (AI) and Emerging Technologies (ET) for Sports Data Science & AI, funded by CSIRO and UNSW. The student will receive a $10k Honours project stipend, plus a $5k training budget) from UNSW and CSIRO. This project will include a 6-day industry placement at SPLINK headquarters in New Zealand as per terms of the NGGP consortium student contracts (expenses paid). This opportunity is only available to ANZ citizens or permanent residents.