Data Science in the News

Webinar: Going for Gold – Data, data science and elite sports

Friday 31 July
12pm - 1pm

The next Data Science in the News webinar in a new series on sports is on **Friday 31 July, 12 noon to 1pm** (Brisbane time), and will look into **"Going for Gold: Data, data science and elite sports"**. There will also be a Q&A session at the end. This webinar series is brought to you by the QUT Centre for Data Science and the Queensland Academy of Arts and Science.

Moderator

- **Distinguished Professor Kerrie Mengersen**, Director, QUT Centre for Data Science.

Panellists

- **Dr Mark Osborne,** General Manager Performance Support & Innovation, Swimming Australia
- **Dr Paul Wu,** Senior Lecturer in the School of Mathematical Sciences at QUT and an Associate Investigator in the QUT Centre for Data Science and ARC Centre of Excellence in Mathematical and Statistical frontiers
- **Dr Julie Vercelloni,** Research Associate at QUT and an Associate Investigator in the QUT Centre for Data Science and ARC Centre of Excellence in Mathematical and Statistical frontiers
- **Associate Professor Chris Drovandi,** Research Program Leader at the QUT Centre for Data Science and an Associate Investigator of ARC Centre of Excellence in Mathematical and Statistical frontiers

Panel session topics

Dr Mark Osborne: "Competition results and data skills"
In this session, I will explore skills data such as bench-marking, race modelling/pacing, pattern recognition and new trends. I will also discuss competition results to explore how these are used for determining athlete categorisation and therefore funding support; are we swimming at our best when it matters?; evaluating athlete trajectories; event trajectories; team selections and market share through depth analysis.

Dr Paul Wu: "That's Gold! Predicting Olympic winning times"
Preparing for elite sporting competitions like the 2021 Tokyo Olympics is fraught with challenges, but a key question is: how fast is fast enough to win gold? Using Bayesian statistics, we can predict winning times 19% more accurately than using historical data, and help swimmers and coaches answer questions like: "what is my chance of winning if I swam a certain time?".

Dr Julie Vercelloni: "A case-study for 3D Sport Science: analysing speed and complexity in Underwater Rugby"
Underwater Rugby (UWR) is an emergent team-sport that combines swimming, full-contact and ball skills within an underwater environment. The game relies on speed, breath holding capacities and complex 3D team strategies to perform at the elite level. At this level, Germany and Colombia are among the best teams while playing very different game strategies. UWR in Australia is booming with an increasing number of players across the country and is ranked among the best new teams at the international level. This talk introduces a project in collaboration with Germany, Austria and Australia to assess factors of performance in

UWR. We aim to use innovative underwater sensors and Data Science to monitor and analyse physiological responses of elite players when playing UWR across genders and countries. The project will support the development of breakthrough knowledge for strategy and game improvements; provide new insights on physiological responses from underwater effort; assist sport regulations; and contribute to the development of UWR, in its most modern way.

Associate Professor Chris Drovandi: TBA

Our panellists

Dr Mark Osborne is the General Manager, Performance Support and Innovation at Swimming Australia since 2013. Prior to that, he was the Sports Science Manager with the Queensland Academy of Sport. He attended multiple World Championship and Olympic Games in scientific support and competition analysis roles. He holds an Adjunct Senior Lecturer position with UQ and has supervised multiple PhD students.

Dr Paul Wu is a Senior Lecturer in the School of Mathematical Sciences at QUT and an Associate Investigator in the QUT Centre for Data Science (CDS) and ARC Centre of Excellence in Mathematical and Statistical frontiers (ACEMS). He is passionate about developing and applying Bayesian and machine learning methods to tackle complex, real-world problems. Paul leads a number of collaborative projects between data science researchers, applied researchers and industry practitioners, especially in ecology, and sports and physiology. Key methodological interest areas include Bayesian statistics, non-homogeneous state space models, Dynamic Bayesian Networks and machine learning.

Dr Julie Vercelloni is a Research Associate at QUT and an Associate Investigator in the QUT Centre for Data Science (CDS) and ARC Centre of Excellence in Mathematical and Statistical frontiers (ACEMS). Julie's research interests focus on combining state-of-the-art technologies offered by machine learning, remote sensing and by the rise of citizen science and, Bayesian modelling to help understanding complex problems related to coral reef conservation. She is also develloping new approaches to better estimate reef aesthetic values using virtual reality and human perceptions of beauty.

Associate Professor Chris Drovandi is an Associate Professor in Statistics and Data Science at QUT. He is currently a Research Program Leader of the QUT Centre for Data Science. He is an Associate Investigator of the ARC Centre of Excellence for Mathematical and Statistical Frontiers, and an Associate Editor of Statistics and Computing. From 2016-2019 he was the Chair of the Bayesian Statistics Section of the Statistical Society of Australia. In 2020, he was the recipient of an Australian Research Council Discovery Project grant on novel sequential Monte Carlo methods. From 2016-2019, he was an Australian Research Council Discovery Early Career Researcher Award (DECRA) Fellow.