

PROJECT BRIEF

POSITION: VICTORIA UNIVERSITY INDUSTRY POSTDOCTORAL RESEARCH FELLOW

PROJECT TITLE: Data To Decisions: Data Science That Informs Decision Making and Policy Development in Elite Tennis.

NOTES TO APPLICANT:

1. Applicants for the Victoria University Industry Postdoctoral Research Fellowship must have a PhD or equivalent Doctoral qualification normally awarded no earlier than 2 October 2010.
2. Applicants cannot have already undertaken a research fellowship at Victoria University.
3. At the scheme's advertised closing date, applicants cannot have an existing employment contract with Victoria University, which is longer than 12 months.
4. The applicant's research performance, including publication output, must indicate clear potential for the applicant to build a sufficiently competitive track record within the term of this fellowship to be competitive in an application for a significant Australian Competitive Grants Register funding application during this period.
5. Applicants should show demonstrated ability in developing grant applications.
6. This position will be offered at either Academic Level A (Research Officer) or Academic Level B (Research Fellow) commensurate with the successful candidate's expertise, track record and research profile. Please ensure that you **address the selection criteria in the position description**, appropriate to the level that you are applying for, in the following context:

Project Summary:

The "Moneyball" revolution (use of big data sets and sophisticated modelling to predict athletic performance) has coincided with a shift in the way that stakeholders in sport handle and utilize data to guide athlete preparation and achieve success. However, in tennis, nearly all of the analytical works have (a) described on-court performance using hand-labelled event data to articulate "what" has happened or (b) attempted to inform off-court training, preparation and policy development using incomplete data-sets or underdeveloped analysis methods.

As tennis is a dynamic sport, simple event statistics do not capture the complex aspects of game play. To gain a competitive advantage, Tennis Australia has invested in tracking technologies to determine "where" and "how" events happen in those dynamic settings (Australian Open and the daily training environment). Methods to model and predict player performance remain in their

infancy and have, as yet, not been operationalized to the benefit of players and coaches. One of the aims of this project is therefore to address this gap by developing models to predict serve direction and point outcome.

The other aim of this course of research is to apply optimisation techniques to understand the relationships between athlete preparation (training load), competition performance and injury to inform organisational and athlete development policy.

This program of research is designed to primarily benefit Australian tennis players, coaches and the supporting sports science staff. More broadly, it is envisaged broadcasters of Tennis Australia who cover the Australian Open and the Australian summer tennis circuit may also benefit from the enriched statistical insights that detail the nature of the tennis contest. The research needs to be undertaken as it represents a key direction in current research be it in sports science or other domains (such as insurance, health or banking) where large data sets are being analysed to uncover hidden patterns, market trends, player/customer preferences and other useful information that allows us to better understand the person-environment interaction. It is argued that insights gathered from such techniques have the capacity to alter current practice (be it in this case tactical gameplay, injury management or broadcasting).

Supervision Team:

Dr Sam Robertson (VU)

Dr Machar Reid (Tennis Australia)

Dr David Whiteside (VU and Tennis Australia)

External Partner Organisation:

Tennis Australia

Lead Partner Investigator: Dr Machar Reid

Location and Support Resources including Infrastructure:

The position will be based at both Victoria University's Footscray Park campus as well as at the Tennis Australia offices at Melbourne Park. The incumbent will divide their time between the ISEAL facilities at Victoria University and Tennis Australia's high performance training facility. Infrastructure support will be provided to the Fellowship Holder at both job locations, including desk space, a computer, phone, and access to technical services.

For more information regarding this Project, contact:

Dr Sam Robertson

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ACADEMIC STAFF POSITION DESCRIPTION



POSITION TITLE:	Research Fellow – Tennis Data Scientist (VU Industry Postdoctoral Research Fellow)
POSITION NUMBER:	908275
COLLEGE/ DEPARTMENT:	Institute of Sport, Exercise and Active Living (ISEAL), College of Sport and Exercise Science
LOCATION/CAMPUS:	Footscray Park Campus (VU)/Tennis Australia (TA), National Tennis Centre, Melbourne
CLASSIFICATION:	Level A/B
SUPERVISORS:	Professor Damian Farrow / / Professor Skill Acquisition Institute of Sport, Exercise and Active Living (ISEAL)
APPROVED BY:	Professor Warren Payne / / Pro Vice-Chancellor (Research & Research Training)

OVERALL PURPOSE

The overall purpose of the Research Fellow position is to provide academic research excellence in areas of strength and focus in the Institute of Sport, Exercise and Active Living (ISEAL), College of Sport and Exercise Science. The external partner and co-funder of the Fellowship is Tennis Australia (TA).

The incumbent will be responsible for conducting high-quality research, generating research outputs and seeking external research funding, specifically being involved in an ARC Linkage Project and/or other external competitive research grant application/s during the Fellowship's term.

The position will carry out independent research and team research. In addition, the Research Fellow may supervise postgraduate research students and may be involved with research training and teaching.

ORGANSIATIONAL ENVIRONMENT

Victoria University has seven Colleges charged with the delivery of education, research and knowledge exchange.

These are:

- College of Arts
- College of Business
- College of Education
- College of Engineering and Science
- College of Health and Biomedicine
- College of Law and Justice
- College of Sport and Exercise Science

Colleges offer diplomas, undergraduate degrees as well as postgraduate and research higher degrees. In addition to the seven Colleges above, the Trades College will focus on vocational training and form the foundation of an innovative Trades Academy in 2014. The focus of VU College is on learner academic support and leadership and coordination of the University's language, literacy and numeracy strategy.

Colleges are comprised of academic and teaching staff, Institutes and Centres. Staff from both vocational education and higher education work in the College structure. The Colleges are supported by shared educational, research and professional services to ensure high quality, efficient and innovative delivery of curriculum and the highest quality research and knowledge exchange in areas of distinctive specialisation. Distinctive specialisations form broad disciplinary groupings as the vehicles for collaboration, interaction and greater thematic integration across the University. Through the distinctive specialisations, Victoria University aims to develop world leading research capability in areas of strategic focus.

Each College will be the custodian of at least one distinctive specialisation. The role of the custodian College is to support the development and planning that will enable the distinctive specialisation to grow their potential. The University has a goal of being world renowned in Sport, Exercise and Active Living by 2016, and in at least another three areas by 2020. The distinctive specialisation areas will provide the focus of our learning and teaching, research and knowledge exchange activities as Victoria University strives to be nationally and world renowned in these distinctive areas.

COLLEGE OF SPORT AND EXERCISE SCIENCE

The College of Sport and Exercise Science is the critical entity in Victoria University to deliver on the priority strategic objective set in the Victoria University 2012-2016 Strategic Plan: to be world renowned in sport, exercise and active living by 2016. The College of Sport and Exercise Science is also central to Victoria University's aim to be Australia's Sport University, working in collaboration with all other Colleges of the University, where sport encompasses sport, exercise and active living.

The mission of the College of Sport and Exercise Science at Victoria University is to enhance health and quality of life through discovery, dissemination and application of evidence-based knowledge of human movement. This mission will be achieved through sport, exercise and active living, empowering students from diverse countries and cultures, socioeconomic and educational backgrounds, to be successful lifelong learners grow their skills and capabilities for the changing world of work. Students will grow to be confident, creative, ethical and respectful local and global citizens. The College of Sport and Exercise Science focuses its delivery on outstanding undergraduate and graduate teaching, research, service, and enterprise activities delivered by a passionate team of qualified professionals in a truly inspirational environment.

There are five Discipline Groups within the College of Sport and Exercise Science:

- Exercise Physiology/Anatomy
- Clinical/Rehabilitation
- Physical Education/Sport Coaching
- Social and Behavioural Sport Science
- Sport Management

The College of Sport and Exercise Science currently offers ten undergraduate courses, three options of

honours study, three taught masters course, multiple masters by research options, and a PhD from a range of topics in sport, exercise science and active living. These courses account for approximately 2138 undergraduate degree students, 83 honours/masters students, and 103 PhD students.

INSTITUTE OF SPORT, EXERCISE AND ACTIVE LIVING

The Institute of Sport, Exercise and Active Living (ISEAL) was established at Victoria University in 2010 and is the research arm of the College of Sport and Exercise Science. The Vision of ISEAL is to be a world-leading research institute in sport, exercise science and active living, with the Mission is to make important contributions to society through innovative research in sport, exercise science and active living.

ISEAL contains a significant critical mass of researchers, with more than 230 academic and research-only staff and higher degree by research students. Research-only academic staff associates of ISEAL currently include 19 Professors, 17 Associate Professors, 21 Senior Lecturers, 4 Senior Research Fellows, 28 Postdoctoral Research Fellows and 45 Lecturers. There are currently around 103 higher degree by research students in ISEAL.

ISEAL is supported by world-class research infrastructure. Research facilities include the \$68.5 million Sport and Exercise Science building, unparalleled nationally and internationally significant; as well as a new \$52 million clinical research and teaching facility at the Western Centre for Health Research and Education, Sunshine Hospital.

The ISEAL Research Strategic Plan 2012-2016 provides a blueprint for ISEAL to become a highly focussed and visionary Institute that is successful in winning major grants, produces research outputs of outstanding international and national impact, and is exceptionally well-connected nationally and globally.

The operations of the College of Sport and Exercise Science and ISEAL are located at the Sport and Exercise Science precinct at the Footscray Park Campus of the University.

Research at ISEAL

ISEAL's research is thematic in nature, utilises multi-disciplinary approaches wherever possible and spans fundamental through to applied research under our four research programs, each underpinned by multiple world-class research groups:

- Sport Science
- Sport in Society
- Clinical Exercise Science
- Active Living and Public Health.

The operations of the Institute of Sport, Exercise and Active Living (ISEAL) and this position are currently located at the Footscray Park Campus of the University. Given the industry nature of this position there will also be significant time spent at the offices of Tennis Australia located at the Melbourne Tennis Centre in Richmond. There may be occasion when this position may be relocated to any other existing or future University work location. On occasion the appointee may also be expected to travel to other VU campuses.

MAJOR CHALLENGES/FREEDOM TO ACT

This position reports to, and receives direction from Professor of Skill Acquisition. This position also receives broad direction from the Director of ISEAL and the Innovation Catalyst, Tennis Australia.

A key challenge of the position will be to carry out independent and/or team research that will involve the development of relationships that link with the relevant external industry partners and government organisations. Accountability is measured in terms of research outputs, both qualitatively and quantitatively (publications, speaking engagements, media notices and demonstrated public impact).

The incumbent will be expected to increase his/her research profile and recognition for the University.

MAJOR DUTIES

In performing the following duties the incumbent is required to comply with quality assurance policies and procedures, and other relevant legislative requirements applicable to the University. The major duties to be performed are:

1. Undertake high quality academic research, by leading a major research project with guidance from nominated supervisory mentors at VU and Tennis Australia.
2. Support the research interests and strengths of relevant research associates in ISEAL and Tennis Australia, assisting them to formulate research programs and methodologies, and access relevant funding sources.
3. Publish papers, articles and reports in a range of academic and industry publications, including journals, monographs and conference proceedings.
4. Contribute to the development of the University's research culture, through the promotion, conduct and facilitation of research projects, dialogue and debate, research skills and methods, and publications.
5. Initiate developments in specified research fields and enhance research directions and priorities in collaboration with academic staff in ISEAL and Tennis Australia.
6. Contribute to ISEAL and College forums and policies relating to research.
7. Prepare and submit external grant applications, and develop external research collaborations and partnerships.
8. Attend conferences, workshops and other professional development activities.
9. Provide leadership to research students in the College & Institute where appropriate.
10. Liaise with College/Institute and Tennis Australia staff and with other relevant research groupings internally and externally.
11. Ensure that the work for which they and their staff are responsible is carried out in a manner

which safeguards the OHS of staff, students, visitors and contractors.

KEY SELECTION CRITERIA

1. Knowledge and Training equivalent to: a PhD qualification or equivalent accreditation and standing in a relevant discipline.

Applicants must have a PhD or equivalent Doctoral qualification normally awarded no earlier than 2 October 2010.

2. Demonstrated research skills and experience to undertake the attached project brief.
3. Substantial track record of successful research including funded research such as Australian Research Council applications or equivalent international research funding grants.
4. A record of quality publications in relevant areas.
5. Capacity to work effectively in an interdisciplinary environment and contribute to the work of the research team.
6. Demonstrated capacity to implement OHS policies, procedures and safe work practices.
7. Willingness to commit to Victoria University's values which are:
 - Values – Access, Excellence, Respect
 - Behaviours – Engagement, Collegiality, Courage



*Denotes the Position