CURRICULUM VITAE

Adrian Bruce McCallum, PhD

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CAREER SUMMARY

30 years' international leadership and management experience across diverse fields. Full-time academic since 2011 after retiring from the Australian Army. Discipline/Program lead for both Science and Civil Engineering; significant experience in managing personnel. Contributing to $4M in research projects and has managed $30M infrastructure projects. Recently instrumental in Business Development roles, working closely with internal and external stakeholders to maximise collaborative research opportunities. Demonstrates acumen for engagement at the highest levels; an empowering and gregarious communicator who readily forges valuable partnerships.

CORE COMPETENCIES

- **Leadership** - a proven leader with the ability to empower both teams and individuals.
- **Stakeholder Engagement** - demonstrated experience in building relationships and managing projects across science and engineering.
- **Research and analysis -** extensive experience in the collection, analysis and communication of technical engineering and scientific data.
- **Health and Safety** - diverse experience in industrial relations, equal opportunity and health and safety issues.

CURRENT APPOINTMENT

I currently serve as **Manager - Defence Engagement** at the University of the Sunshine Coast. I have previously served as **Discipline Leader – Science** and **Program Leader - Civil Engineering.**

ACADEMIC EXPERIENCE

Manager - Defence Engagement University of the Sunshine Coast (USC) (2018 - Present)

Identify and procure Defence and defence industry research opportunities for USC; support regional SMEs to identify and secure Defence opportunities.

Achievements

- Initiated an intensive round of internal and external consultation to identify existing and potential synergies resulting in substantial ongoing negotiations.
- Worked pro-actively with the Vice Chancellor and local politicians to optimise strategic posture, thereby ensuring sustainable collaborative research opportunities and increased university income.

Science/Engineering Discipline Leader USC (2011 - 2018)

Manage research, teaching and engagement across Science and Engineering disciplines at USC, including the coordination of academic courses, personnel and resources.

Achievements

- Guided the strategic direction of the Science discipline at USC; initiated strategic review of Science and Environmental Science programmes resulting in contemporarily relevant programmes and increased student enrolment.
- Established Science Advisory Board to ensure ongoing alignment and contemporary relevance of Science programmes.

Graduate Student/Research Scientist University of Cambridge (2008 - 2011)

Completed PhD in Polar Science investigating strength assessment of Polar snow using in situ and geophysical means; investigated laser sintering of snow.

Achievements

- Coordinated significant geotechnical and geophysical field research campaign in Antarctica after successfully negotiating with private, government and internal stakeholders.
- Acquired geotechnical and geophysical data enabling BAS to make significant infrastructural decisions; provided proof of innovative technology to commercial supporters in the UK.

PROFESSIONAL EXPERIENCE

Polar Subject Matter Expert (SME) Serco (2019 - Present)

Provide Serco with polar operational, engineering and logistical expertise to increase business opportunities.

Achievements

- Initiated pro-active attainment and characterisation of polar opportunities and associated logistical and engineering constraints to ensure efficient asset use.
- Substantially increased physical business networks via existing national and international Polar, Defence, scientific, engineering and political networks.

Specialist Engineer Recruiter ADF Recruiting, Australian Army (2019 - Present)

Provide specialised engineering advice and representation to the ADF to optimise Engineering recruitment.

Achievements

- Assertively promoted ADF Engineering opportunities across a range of regional engagement fora.

Business Development Executive Core Consultants (2017 - Present)

Provide Core Consultants with Business Development information to increase consultancy opportunities.

Achievements

- Initiated daily updates via numerous social media platforms thereby increasing business exposure 100-fold.
- Substantially increased physical business networks via existing national Defence, engineering and political networks.

Director Remote Area Science & Engineering (2013 - Present)

Manage the provision of innovative in situ and geophysical remote area data gathering solutions.

Achievements

- Initiated collaboration with US Army Cold Regions Research and Engineering Laboratories (CRREL) on innovative deep field geophysical and in situ site investigation methods resulting in multi-million-dollar savings to national Antarctic institutions.
- Guided the development of autonomous geophysical systems for deep field site investigation enabling cost-effective surveys.

Consulting Engineer Australian Antarctic Division (AAD) (2011-2013)

Advised on optimal means for the AAD to most efficiently manage resupply of Australian Antarctic Stations and advised on strategic viability of the Wilkins ice runway.

Achievements

- Identified novel short- and long-term infrastructural solutions for resupply of Australian Antarctic Stations.
- Provided strategic-level recommendations for sustainment of Australia's Antarctic air-link.

Research Engineer British Antarctic Survey (BAS) (2009 - 2010)

Managed geotechnical and geophysical scientific and engineering investigations supporting the development and relocation of the BAS Halley VI Research Station, Antarctica.

Achievements

- Managed personnel and resources to complete innovative site investigation project in a timely, efficient and cost-effective manner.
- Provided advice to BAS on the viability of existing Station infrastructure to sustain future operational requirements.

Project Manager Infrastructure Division, Dept of Defence (2006 - 2007)

Managed and coordinated the delivery of $30 M of technical Defence projects within NSW, Australia, incorporating civil and ICT infrastructure.

Achievements

- Completed a number of 'legacy' projects by re-engaging with primary stakeholders to address project requirements and determining realistic budgets and timetables for completion.
- Re-established positive cooperation with governing bodies to ensure cooperation and project progression.

Project Engineer 19th Chief Engineer Works, Australian Army (2005)

Managed the design, planning and construction of ~$10 M of regional engineering works (including projects in Papua New Guinea, Tuvalu, Tonga, and Arnhem Land).

Achievements

- Liaised with a broad range of stakeholders to ensure cooperation and the timely development of a major indigenous infrastructure project.
- Developed unique solutions to project environmental risks, thus enabling International Policy Division to make informed decisions about the allocation of Government aid funding.

DIRECTORSHIPS & PROFESSIONAL AFFILIATIONS

- Bloomhill Cancer Care - Director, 2019 -
- Griffith Menzies Health Institute Queensland (MHIQ) - Advisory Board Member, 2017-2018.
- International Society for Soil Mechanics and Geotechnical Engineering, Frozen Soil - Technical Committee Member, 2016 -
- International Society for Soil Mechanics and Geotechnical Engineering, In Situ Soil Investigation - Corresponding Member, 2016 –
- Rhodes Scholarships Australia - Advisor, 2015 -
- Sir Robert Menzies Memorial Foundation - Director, 2014-2018.
- Menzies Memorial Scholars Association - President, 2014-2018.

EDUCATION

2007-2011 **University of Cambridge (Scott Polar Research Institute)**
PhD, Polar Studies (Glaciology)
- Dissertation: Cone Penetration Testing (CPT) in Polar Snow
- Supervisor: Professor Elizabeth Morris

2003-2004 **University of Western Australia**
BE, Civil (1st Class Honours)
- Honours Thesis: *The Movement and Expected Lifetime of the Casey ice runway*

1996 **Bureau of Meteorology (Australia)**
Graduate Diploma (Meteorology)
- Incorporating practical training as a Forecaster and Royal Australian Navy (RAN) Meteorological and Oceanographical Officer (METOC)

1989-1992 **Australian Defence Force Academy (ADFA)**
Officer Commission
- Leadership, Tactical and Strategic planning, Administration, Military Law.

1989-1992 **University of New South Wales**
BSc, Oceanography (Honours)
- Honours Thesis in Oceanography: *A Temperature and Salinity Analysis of the Gulf of Carpentaria*

PRIMARY RESEARCH INTERESTS

My area of specialisation is the use of the Cone Penetration Test (CPT) in frozen geomaterials. My proficiency in this field is founded upon thirty years of field experience and my inherent inclination to use and develop instrumentation to assess the natural world, particularly geomaterials. My work is the first and thus far only use of the tool in frozen geomaterials such as snow, firn, ice and sea ice. My broader research interests pertain to the assessment of all geomaterials, via in situ and geophysical means. I have recently expanded my skills to include sediment core extraction from both coastal and lacustrine environments and my expertise now encompasses the assessment of geomaterials via in situ, geophysical and extractive means.

REFEREED JOURNAL PAPERS

Tham, A., Waldron, R., **McCallum, A. B.** and Srivastava, S. K. (2020) Eclectic approaches to analyze recreational cruise sustainability. *Journal of Park and Recreation Administration*. doi:10.18666/JPRA-2020-10386

Suara, K., Mardani, N., Fairweather, H., **McCallum, A. B.,** Allan, C., Sidle, R. and Brown, R. (2020) Improving the accuracy of hydrodynamic model predictions using Lagrangian calibration, Water (accepted).

Sinnamon, K., Zin, R. and **McCallum, A. B.** (2020) Efficacy of Traffic Calming Devices on the Sunshine Coast, Transport Reviews (accepted).

McCallum, A. B. (2020) Quantitative comparison of Cone Penetration Testing (CPT) tip resistance data with Ground Penetrating Radar (GPR) amplitude data, USACE Journal of Cold Regions Engineering, Vol. 34, Issue 2.

Gontz, A.M., **McCallum, A.B.**, Ellerton, D, Patton, D. and Shulmeister, J. (2020) Teewah Transect – GPR-Derived Insights into the Younger Dune Morphosequences on the Great Sandy Coast, Queensland, Australia. Journal of Coastal Research, Special Issue No. 95.

Nunn, P., **McCallum, A. B.**, Davies, P, McKeown, M., John, E. and Woodward, C. (2019) Origin and development of sand islands off the north coast of Viti Levu Island, Fiji, Journal of Coastal Conservation. https://doi.org/10.1007/s11852-019-00707-w

Nunn, P., Lancini, L. Franks, L., Compatangelo-Soussignan and **McCallum, A. B.** (2019), Maar stories: how oral traditions aid the understanding of mar volcanism and associated phenomena during pre-literate times, Annals of the American Association of Geographers, Vol. 49, No. 4.

McCallum, A. B. and Wiegand, A. (2018) Estimating snow strength using Cone Penetration Testing, Journal of Cold Regions Engineering.

Suara, K., Mardani, N., Fairweather, H., **McCallum, A. B.,** Allan, C., Sidle, R. and Brown, R. (2018) Lagrangian drifter observation of the dynamics and horizontal dispersion of a shallow Intermittently Close and Open Lake and Lagoon (ICOLL), Water.

McCallum, A. B. (2018) Polar science needs a foundation: where is the research into Polar infrastructure? Advances in Polar Science.

Falkstrom, R. and **McCallum, A. B.** (2018) Efficacy of a home-made slope stability radar, Australian Journal of Geomechanics.

McCallum, A. B. (2017), Assessing mass balance using the Cone Penetration Test (CPT), Journal of Glaciology.

White, G and **McCallum, A. B.** (2017) Engineered Pavements of Snow and Ice. International Journal of Pavement Research and Technology.

McCallum, A. B. and Looijen, P. (2017) Friction-sleeve-equipped mini-penetrometer testing in Greenland, ASCE Journal of Cold Regions Engineering.

Nichols, P., **McCallum, A. B.** and Lucke, T. (2017) Using Ground Penetrating Radar to Evaluate Tree Roots in Urban Areas, Urban Forestry & Urban Greening.

McCallum, A. B. (2016) In situ assessment of snow density using CPT sleeve friction data, Australian Journal of Geomechanics.

McCallum, A. B. (2014) CPT in frozen geomaterials - introduction and application, Annals of Glaciology.

McCallum, A. B. (2014) Estimating snow dielectric values using the surface reflection method, NZ Journal of Hydrology.

McCallum, A. B. (2014) Cone Penetration Testing (CPT) in Antarctic firn - an introduction to interpretation, Journal of Glaciology.

McCallum, A. B. (2014) Cone Penetration Testing (CPT): a valuable tool for investigating polar snow, NZ Journal of Hydrology.

Roche, S. and **McCallum, A. B.** (2014) Correlation Between Point Load Strength Index and Uniaxial Compressive Strength on the Sunshine Coast, Queensland, Australian Journal of Geomechanics.

Gontz, A. M., Moss, P. T., Sloss, C. T., Petherick, L., **McCallum, A. B.** and Shapland, F. (2014) A Review of the Physical Environments of Fraser Island, Australia - Toward Understanding Past Climate Variation and Environmental Change, Australian Journal of Environmental Management.

McCallum, A. B. (2014) Snow density assessment using the Cone Penetration Test, Journal of Glaciology.

McCallum, A. B. (2014) A passive road over perennial ice at Casey Station, Antarctica, USACE Journal of Cold Regions Engineering.

McCallum, A. B. (2013) CPT in Antarctica, Australian Journal of Geomechanics, Vol. 48, No. 1, pp.111-120.

SUBMITTED JOURNAL PAPERS

Waldron, R. P. and **McCallum, A. B.** (2020). Measuring and predicting sediment erosion on sandy roads to inform strategies for sustainable transport network management, Australasian Journal of Environmental Management.

McCallum, A. B., Thorneton-Field, V. and Boxall, S. (2020) Intimate sub-ice observations of temperature maxima and diffusive mixing in the high Arctic, Annals of Glaciology.

Waldron, R. P. and **McCallum, A. B.** (2020) A review of road infrastructure development and contemporary degradation on K'gari-Fraser Island, Australasian Journal of Environmental Management.

McCallum, A. B. (2020) Estimating sub-surface snow density using the surface reflection method, Journal of Cold Regions Science and Technology.

Lee D. and **McCallum, A. B.** (2020) Sugar as a proxy for snow in penetrative testing, Frontiers in Earth Sciences.

Gontz, A.M., **McCallum, A.B.**, and Shulmeister, J. (2020) Stratigraphic architecture of the Carlo Sand Blow, Rainbow Beach, Queensland, Australia. Aeolian Research.

REFEREED CONFERENCE PAPERS and POPULAR SCIENCE ARTICLES

McCallum, A. B. (2020) On Wilkins and Snow Shelters, The Sir Hubert Wilkins Foundation Newsletter.

McCallum, A. B. and Fairweather, H. (2019) Empowering self-reflection to stimulate optimum outcomes in first year engineering, AAEE 2019 Conference, Brisbane, Australia.

Hofstede, C., Christoffersen, P., Pettersson, R., **McCallum, A. B.**, Young, T. J., Eisen, O. and Smith, E. (2019) Detecting the subglacial conditions at Store Glacier, West Greenland, using a combined seismic-radar survey. EGU General Assembly, Vienna, 7 April 2019 - 12 April 2019.

McCallum, A. B. (2018) Applying breakage mechanics theory to estimate bearing capacity from CPT in polar snow. 4th International Symposium on Cone Penetration Testing, Delft.

McCallum, A. B. (2018) Is the future of Australian higher education private?, Meanjin Blog, Melbourne University Press.

Yeaman J. and **McCallum, A. B.** (2017) The Influence of Solar Radiation and Sub grade moisture on Pavement Performance, Seventh International Conference on Geotechnique, Construction Materials and Environment, GEOMATE, Mie, Japan.

Yeaman J. and **McCallum, A. B.** (2017) The Influence of live traffic on Pavement Performance, Seventh International Conference on Geotechnique, Construction Materials and Environment, GEOMATE, Mie, Japan.

Tyler, C., Suara, K., Brown, R., **McCallum, A. B.,** Fairweather, H. and Sidle, R. (2017) Dynamics of a tidal estuary with two inlets: Lagrangian drifter observation of dispersion in Pumicestone Passage, Australia. Proceedings of the 13th Hydraulics in Water Engineering Conference 2017, 13-16 November 2017, Sydney, N.S.W.

McCallum, A. B. (2017) Keep it cool: how science is the best diplomatic tool in Antarctic, The Conversation.

McCallum, A. B. (2017) My Story - Adrian McCallum, Sunshine Coast Daily.

McCallum, A. B. (2017) The Coldest Journey Expedition, The Bulletin, Royal Geographical Society of Queensland.

McCallum, A. B. (2016) Environmental Geophysics: Interpreting radar data from the Bonar Glacier, New Zealand – where to from here?, CSIRO Preview.

McCallum, A. B. and Barwise, A. (2016) Extreme Site Investigation, Oilfield Technology.

Gontz, A.M; **McCallum, A.B.,** Moss, P.T., and Shulmeister, J. (2016) Ground Penetrating Radar Observations of Present and Former Coastal Environments, Great Sandy National Park, Queensland, Australia – Focus on Moon Point, Fraser Island. In: Vila-Concejo, A.; Bruce, E.; Kennedy, D.M., and McCarroll, R.J. (eds.), Proceedings of the 14th International Coastal Symposium (Sydney, Australia). Journal of Coastal Research, Special Issue, No. 75. Coconut Creek (Florida), ISSN 0749-0208.

Clark, D.H., Shulmeister, J., Chang, J., Woodward, C., **McCallum, A. B.,** and Green, K. (2016) Testing late-Pleistocene through late-Holocene climate variability in south-eastern Australia as preserved in sediments from Blue Lake, Snowy Mountains, Australia. GSA Abst. w/ Programs 48, doi: 10.1130/abs/2016AM-282021.

Fitter, J., **McCallum, A. B.** and Patino, J, L. (2016) Development of an Unmanned Aircraft Mounted Software Defined Ground Penetrating Radar, 5th International Conference on Geotechnical and Geophysical Site Characterisation, Gold Coast, Australia.

McCallum, A. B. and White, G. (2016) Engineered Pavement of Snow and Ice, 8th International Conference on Snow Engineering, Nantes, France.

Ketterer, T., Suara, K., Brown, R., Fairweather, H. and **McCallum, A. B.** (2016) Cluster Dispersion of Low-Cost GPS-Tracked Drifters in a Shallow Water Body, 10th Australasian Heat and Mass Transfer Conference (AHMT).

McCallum, A. B., Porter, M. and Fairweather, H. (2016) Design, construction and investigation of an earth retaining structure – a foundation for active learning, AAEE 2016 Conference, Coffs Harbour, Australia.

McCallum, A. B. and Rogerson, M. (2015) Questions on the interpretation of ice radar data from the Bonar Glacier, New Zealand, New Zealand Journal of Hydrology.

McCallum, A. B. (2014) Direct estimation of snow density from CPT, 3rd International Symposium on Cone Penetration Testing, Las Vegas.

McCallum, A. B., Barwise, A. and Santos, R. (2014) Is the CPT useful for Arctic Site Investigation?, 33rd International Conference on Ocean, Offshore and Arctic Engineering, San Francisco.

Srivastava, S. K., Hambly, B., Davies, P., Gontz, A. M. and **McCallum, A. B.** (2014) A comparison of field observation, radar-based and remote sensing techniques to map and characterise paleochannels in the Southeast Queensland region, QCON14 (incorporating 17th Australasia Remote Sensing and Photogrammetry Conference (ARSPC), the 6th Queensland Surveying & Spatial Conference (QSSC) and the LiDAR Technologies Conference.

McCallum, A. B. (2014) Private funding could help Australia's role in the Antarctic, The Conversation.

McCallum, A. B. (2013) Why the 'infrastructure PM' can't give Antarctica the cold shoulder, The Conversation.

Mullaney, J., **McCallum, A. B.** and Lucke, T. (2013) Permeable paving systems: Is there a potential use to promote street tree health, minimise pavement damage and reduce stormwater flows. Stormwater Industry Association of Queensland Conference.

McCallum, A. B., Barwise, A. and Santos, R. (2011) CPT in polar snow – equipment and procedures, 2nd International Symposium on Cone Penetration Testing, Huntington Beach, USA.

McCallum, A. B., Barwise, A. and Santos, R. (2011) Cone penetration testing (CPT) in polar snow – preliminary observations, Frontiers in Offshore Geotechnics II, Perth, Australia.

McCallum, A. B. (2006) Movement and Expected Lifetime of the Casey ice runway, ASCE Cold Regions Engineering Conference, Bangor.

TECHNICAL REPORTS, CONSULTANCIES and SUBMISSIONS TO GOVERNMENT INQUIRIES

Kaluza, J. and **McCallum, A. B.** (2018) Preliminary Ground Penetrating Radar Survey at Currawinya National Park. Queensland Parks and Wildlife Service.

McCallum, A. B. (2017) A sensible man's approach to urban transport, Federal Lower House Committee on the Social Impacts of Autonomous Vehicles.

McCallum, A. B. (2013) Wilkins Aerodrome Glacial Ice Runway - Review of existing data and scientific assessments & assessment of sustainability, Australian Antarctic Division.

McCallum, A. B. (2012) Casey Wharf Road – A Scoping Study, Australian Antarctic Division.

McCallum, A. B. (2008) Logistical Feasibility study of a winter Trans-Antarctic Expedition, Scott Polar Research Institute.

STUDENT SUPERVISION (* indicates primary supervisor)

I have supervised five HDR students to completion:

Mr Thomas Weir (Masters), 2020. Foamed bitumen stabilisation.

Ms Alise Fox (Masters), 2020. Viscoelastic behaviour of asphalt pavements.

Mr Robert Espinosa (Masters), 2020. Foamed bitumen base course with marginal materials.

Mr Sean Jamieson (Masters), 2019. Stone mastic asphalt for Australian airport pavements.

***Ms Janina Kaluza** (Masters), 2018. The conservation and ecology of the vulnerable water mouse along the Maroochy River of south east Queensland.

I am currently supervising five HDR students:

***Mr John Fitter** (PhD). Development of a Software Defined Radio (SDR) Ground Penetrating Radar (GPR) for Unmanned Aerial Vehicles (UAVs).

***Mr Ross Waldron** (PhD). Impact of recreational vehicles on Fraser Island roads.

***Ms Neda Mardani** (PhD). Use of Lagrangian drifters to model estuarine dynamics.

Mr Leigh Franks (PhD). Ageing of Australian Aboriginal oral memories using geological means.

Ms Thi Thu Ha Nguyen (PhD). Inshore dynamics.

I have completed supervision of three Science Honours theses and more than 50 Engineering Honours theses. I have served as internal Chair of Examiners on numerous occasions.

EXTERNAL PhD THESES EXAMINED

2019 Dr Ashish Mishra, James Cook University.

RESEARCH AWARDS and GRANTS

2020 **$178,000**. National Science Foundation (US) to examine the paleoclimate of the Australian Alps (PI). **$5000.** Mt Everest Foundation to investigate glacial retreat in NZ's Southern Alps.

2019 **$19,800.** New Colombo Plan to expose undergraduate students to infrastructural challenges in India. **$5000.** Endeavour Plan funding to run western United States geological field trip. **$2300.** USC Travel Grant to convene/attend conferences in Canada and USA. **$1000.** ANSTO Travel Grant to characterise past glaciation of NZ Southern Alps lakes.

2018 **$100,000.** Outer Edge Pty Ltd to assess Antarctic ice thickness via a wind-powered continental traverse (suspended).

2016 **$30,000**. Army Research Scheme to investigate the militarisation of Antarctica. **$27,000**. Faculty Research Initiative Grant to examine sand island development in Fiji. **$10,000**. National Parks South Australia to examine the thickness of cave roofs at Naracoorte Caves.

2015 **$1000**. USC Quick Start Grant to develop a cheap, home-built portable slope-stability radar system.

2013 **$111,267**. Sunshine Coast Council to characterise ground water levels and water quality across the Meridan Plains. **$7887**. Australian Antarctic Division to assess the sustainability of the Wilkins ice runway. **$1667**. USC Seed Grant to investigate the structural uses for bamboo.

2012 **$54,982**. Sunshine Coast Council to monitor Noosa estuary. **$45,000**. Coldest Journey Expedition to investigate temporal and spatial variability in Southern Ocean bird-life. **$4750**. O2 Environmental to investigate effects of geomaterials on erosion control. **$3300**. USC to investigate implementation of CDIO at USC.

2011 **$150,000**. Calin Arctic Survey to conduct scientific man-hauling expedition from the North Pole to Greenland. **$65,028**. Australian Antarctic Division to investigate sustainable access solutions to Casey Station, Antarctica. **$4300**. FOSHEE Research Grant to examine the recession of Indonesia's tropical glaciers.

2009 **$50,000**. British Antarctic Survey to conduct geotechnical investigations at Halley VI Research Station, Antarctica.

2008 **$8000**. Transglobe Expedition Trust to examine the feasibility of a winter crossing of Antarctica.

2007 **$150,000**. Sir Robert Menzies Engineering Scholarship.

INVITED CHAIRED SESSIONS and KEYNOTES

2019 27th International Union of Geodesy and Geophysics (IUGG) International Assembly, Montreal, Canada. Inaugural Southern Hemisphere Conference on Permafrost, Queenstown, New Zealand.

2017 Theo Murphy Australian Frontiers of Science: The Antarctic frontier: developing research in an extreme environment, Hobart, Australia. Keynote, Rural Doctors Association, Queensland, Annual Conference, Townsville, Australia.

2016 8th International Conference on Snow Engineering, Nantes, France. Keynote, Marine Teachers Association of Queensland, Annual Conference, Sunshine Coast.

ACADEMIC AWARDS

2017 Vice Chancellor's Commendation for Excellence in Engagement.

2016 Advancing the Student Experience, Teaching Award, USC (nominee).

2015 Advancing the Student Experience, Teaching Award, USC (nominee). Advancing Quality Teaching, Teaching Award, USC (nominee).

2006 Best paper Award, USACE Cold Regions Engineering Conference.

NON-ACADEMIC AWARDS

2001 Australian Centenary Medal for stewardship of the 2001 Australian Army Mt Everest Expedition.

MEMBERSHIPS

Australasian Association for Engineering Education
Australian Geomechanics Society
Australian Institute of Company Directors
Institute of Australian Geographers (Military Geography Group)
Institute of Glaciology

JOURNAL REVIEW

I have acted as a reviewer for numerous journals including MDPI Geosciences, Journal of Cold Regions Science and Technology, Cold Regions Engineering, Advances in Polar Science and the Australian Association of Engineering Education.

TEACHING RATIONALE

My teaching focusses on learning by doing. My indoctrination into 'active learning' or learning by 'doing' started over thirty years ago when I joined the Australian Defence Forces. Amidst my university studies I learnt many other things, but particularly the impact and effectiveness of this pedagogical method. You don't learn how to re-assemble a Self-Loading Rifle (SLR) blindfolded in less than 60 seconds (a handy skill if you are about to be engaged by the enemy in the dark) by listening to a lecture or by reading a book: you learn it by 'doing'. My contemporary practice of these methods is aligned with work promoted by John Atkinson, Emeritus Professor of Soil Mechanics at the School of Engineering and Mathematical Sciences, City University, London. John's pedagogical philosophy is to "learn by doing".

I incorporate John's methods into all my courses at the University of the Sunshine Coast (ENG101, Foundations of Engineering, ENG312, Soil Mechanics and ENG432, Advanced Soil Mechanics) and in 2016 I presented a paper on my teaching methods entitled *Design, construction and investigation of an earth retaining structure – a foundation for active learning* to the Australasian Association for Engineering Education (AAEE) at their annual conference.; in 2019 I had a paper entitled *Empowering self-reflection to stimulate optimum outcomes in first year engineering* accepted for the AAEE conference.

TEACHING RELEVANCE

My teaching methods address the curriculum design principles of my current institution as follows:

1. Learning-centred: learning by 'doing' focuses on supporting and enabling learning for all students, particularly by encouraging active and collaborative learning.

2. Standards based: learning based on ‘doing’ can be founded on Engineers Australia competencies; required professional requirements can be embedded via activities.

3. Career and future focused: by enhancing (dynamic) skills rather than (passive) content, learning by ‘doing’ ensures that USC Civil Engineering graduates are career and future focused.

TEACHING LEADERSHIP

In 2015 I was selected as a Mentor within the Peer Assisted Teaching Scheme (PATS) to offer collaborative support to enhance teaching quality and course improvement to another academic staff. Appointment to this role provides recognition from professional staff and peers of my reputation as an innovative and effective lecturer at USC. On numerous occasions I have been invited by Centre for Support and Advancement of Learning and Teaching (C-SALT) staff to present internally on my experience in the successful alignment of courses, from market requirements, via Graduate Attributes, thence via Program and Course Outcomes through to Course content and assessment.

TEACHING RECOGNITION

I continue to be sought as a leader in Teaching & Learning and STEM engagement at USC.

My supervisors have described my student feedback scores as “fantastic” and students routinely express conspicuously high levels of satisfaction with the practical and engaging nature of my courses; for example:

• “Adrian was fantastic. Best lecturer I have had to date. 10/10.”
• “Best lecturer I’ve had yet.”
• “I couldn't want for more.”
• “The most interesting pracs and presentation style of any subject I have experienced.”
• “Loved this course.”
• “Near the best course I've done at USC.”
• “He is the most helpful lecturer I have had so far”
• “Great approach to teaching.”
• “I cannot see any room for improvement.”
• “All aspects of the course were awesome.”

I regularly approach 5.0 out of 5.0 / 4.0 out of 4.0 for my SETAC/eValu8 scores (ENG101/312/432) and I was specifically asked to coordinate ENG101 (Foundations of Engineering) to increase student engagement and retention. In Semester 2, 2018 I received an **average grade of 4.9/5.0** indicating an extremely high level of satisfaction with my teaching.

ENGAGEMENT SUMMARY

The engaging nature of my work and my cross-disciplinary training and experience means that I am regularly sought for media representation. Over the past five years I have averaged over twenty media appearances per year. In 2017 USC Marketing and Communications sought me for their inaugural USC Facebook Live Event. This is because of the engaging nature of my work. Less than one month after the Event, it had reached 47,500 people and received 13,000 views.

If only 1% of these viewers went on to enrol at USC, then potentially this single engagement initiative may have brought an additional $1.3M to USC (at an average Commonwealth government supported revenue of ~$10K per domestic EFTSL). In early 2015 I was named as one of USC’s Media Stars for 2014.

EXTERNAL ENGAGEMENT

2019	Invited Speaker, Pint of Science (Noosa).
2019	Inaugural Speaker, Noosa Parks EnviroForum.
2017 - 2019	Invited Speaker, Royal Geographical Society (Qld).
2017 -	Technical Consultant, Pavement Management Services (PMS) Pty Ltd.
2016 -	Business Development Advisor, Hive Haven Pty Ltd.
2016 -	Technical Consultant, British Antarctic Survey (BAS).
2012 -	Public presentations (Engineers Australia, Rotary, Probus, Lions etc. across the Sunshine Coast Region).
2012 -	School Visits (typically one per Semester).
2011 -	Technical Consultant, Australian Antarctic Division.

INSTITUTIONAL CITIZENSHIP

2019 -	Initiated establishment of Australian Student Veterans Association (ASVA) Chapter at University of the Sunshine Coast (USC), Australia.
2018 -	Manager, Defence Engagement, USC.
2015 - 2018	Discipline Leader, Science / Civil Engineering, USC.
2016 - 2017	Member, Academic Board, USC.
2015 -	USC Network Advisor, Rhodes Scholarships.
2014 - 2015	Keynote Speaker, USC Open Day / Imaginarium.
2013 -	Representative, School of Science & Engineering, regional school/TAFE award ceremonies.
2013 -	Participant, Primary Industry Centre for Science Education (PICSE) program.
2013	Keynote Speaker, USC Science Research Awards.