

Andrew John McDaid, PhD

University of Auckland

Senior Lecturer Mechatronics Engineering
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Born on 24 Dec 1985 in Auckland New Zealand



Scientific Career

- Since 2015 Senior Lecturer in Mechatronics Engineering, Department of Mechanical Engineering, The University of Auckland, New Zealand
- 2013 - 2015 Lecturer in Mechatronics, Department of Mechanical Engineering, The University of Auckland, New Zealand
- 2012 - 2013 Research Fellow, Biomechatronics Research Group, Department of Mechanical Engineering, The University of Auckland, New Zealand
- 2012 Research Fellow, Dynamics and Control Group, Department of Mechanical Engineering, The University of Auckland, New Zealand
- 2011 - 2012 Post-doctoral Fellow, Biomechatronics Research Group, Department of Mechanical Engineering, The University of Auckland, New Zealand

Scholarships, Awards and Faculty Functions

- 2015 UoA Early Career Research Excellence Award (\$25,000)
- 2015 AUEA Emerging Researcher Award (\$10,000)
- Since 2015 Senior Lecturer in Mechatronics Engineering, Department of Mechanical Engineering, The University of Auckland, New Zealand
- 2014 SPARK Ideas Challenge Winner (Entrepreneurship Award)
- 2014 SPARK 100k Challenge Finalist (Entrepreneurship Award)
- 2013 Semi-finalist 'Young New Zealander of the Year' Award
- 2013 - 2015 Lecturer in Mechatronics, Department of Mechanical Engineering, The University of Auckland, New Zealand
- 2012 - 2013 Research Fellow, Biomechatronics Research Group, Department of Mechanical Engineering, The University of Auckland, New Zealand
- 2012 AMP 'do your thing' National Award (\$20,000 grant on Robot Rehabilitation)
- 2012 Research Fellow, Dynamics and Control Group, Department of Mechanical Engineering, The University of Auckland, New Zealand
- 2011 Best Student Paper Award - IEEE/ASME International Conference on Advanced Intelligent Mechatronics, Budapest, Hungary

2011 - 2012	Post-doctoral Fellow, Biomechatronics Research Group, Department of Mechanical Engineering, The University of Auckland, New Zealand
July 2009	New Zealand Postgraduate Study Abroad Award
March 2009	New Zealand Postgraduate Study Abroad Award
2008 - 2011	University of Auckland Doctoral Scholarship
2006	James G Goodfellow Memorial Scholarship
2004 - 2007	The University of Auckland Undergraduate Scholarship

Ten most important publications

* Publications jointly together with UoA-researchers involved within this IRTG

§ Publications jointly together with USTUTT-researchers involved within this IRTG

A) Published in publication outlets with scientific quality assurance and book publications:

1. McDaid, A.J., Mace, B.R.: A Robust Adaptive Tuned Vibration Absorber Using Semi-Passive Shunt Electronics, IEEE Transactions on Industrial Electronics, in press, DOI 10.1109/TIE.2016.2554541, 9 pages, 2016.
2. Giffney, T.; Xie, M.; Yong, A.; Wong, A.; Mousset, P.; McDaid, A.J.; Aw, K.C.: Soft pneumatic bending actuator with integrated carbon nanotube displacement sensor. Robotics, 5(7), 9 pages, 2016.
3. Aw, K.C.; McDaid, A.J.: Bio-applications of IPMC transducers. Smart Materials and Structures, 23(7), 12 pages, 2014.
4. * McDaid, A.J.; Haemmerle, E.; Xie, S.Q.; Aw, K.C.: Design, Analysis and Control of a Novel Safe Cell Micro-Manipulation System with IPMC Actuators. Journal of Mechanical Design, 135(6), 10 pages, 2013.
5. * McDaid, A.J.; Aw, K.C.; Haemmerle, E.; Shahinpoor, E.; Xie, S.Q.: Adaptive Tuning of A 2DOF Controller for Robust Micro-Manipulation Using IPMC Actuators. Journal of Micromechanics and Microengineering, 21, 11 pages, 2011.
6. * McDaid, A.J.; Aw, K.C.; Haemmerle, E.; Xie, S.Q.: Control of IPMC actuators for micro-fluidics with adaptive 'online' Iterative Feedback Tuning (IFT). IEEE Transactions on Mechatronics, 17 (4), p. 789-797, 2011.
7. * McDaid, A.J.; Aw, K.C.; Xie, S.Q.; Haemmerle, E.: Gain scheduled control of IPMC actuators with 'model-free' iterative feedback tuning. Sensors and Actuators A: Physical, 164(1-2), p. 137-147, 2010.
8. * McDaid, A.J.; Aw, K.C.; Patel, K.; Xie, S.Q.; Haemmerle, E.: Development of an ionic polymer-metal composite stepper motor using a novel actuator model. International Journal of Smart and Nano Materials, 1(4), p. 261-277, 2010.
9. * McDaid, A.J.; Aw, K.C.; Xie, S.Q.; Haemmerle, E.: A conclusive scalable model for the complete actuation response for IPMC transducers. Smart Materials and Structures, 19(7), 15 pages, 2010.
10. * Xing, S.; McDaid, A.J.; Xie, S.Q.: Impact of electrode positions and harmonic frequency components in SSVEP-based BCIs. International Journal of Biomechatronics and Biomedical Robotics, 14(2), p. 168-184, 2015.

B) Other publications

C) Patents

1. McDaid, A.J.: Method of Designing Fluidic Actuators. New Zealand Patent Application 712946. 2015

2. McDaid, A.J.: A Rehabilitation Exoskeleton and an Apparatus for Transmitting Torque. PCT patent application number PCT/NZ2015/050073. 2015
3. McDaid, A.J.: A Rehabilitation Exoskeleton and an Apparatus for Transmitting Torque. New Zealand Patent Application 626171. 2014

Supervised graduate students since graduation year 2011

No.	Last Name, First Name	Degree	Title of the dissertation	Duration of thesis
1	Jarrett, Chris	ME	Robust and adaptive control of upper limb exoskeletons for children with CP	1 year
2	Kora, Kazuto	ME	Development of HuREx gait rehabilitation exoskeleton device	1 year
3	Thompson-Bean, Elliot	ME	Soft robotic prosthetic hand	1 year
4	Thomas, Jinu Rose	MEngSt	Neuromuscular electrical stimulation for upper limb movement restoration	1 year
5	Suresh, Padmini	MEngSt	EMG sensing with neuroprosthetic device	1 year
6	Bruce, Jenny	MEngSt	Usability lab implementation at Fisher and Paykel Healthcare	1 year
7	Jacob, Arhra	MEngSt	Multichannel EMG electrode design	1 year
8	Hazra, Dibyanarayan	MEngSt	Computational modelling of CP children with gait exoskeleton	1 year
9	Hope, James	MEngSt	SMA wrist exoskeleton	1 year
10	Mohanasundaram, Prabakar	MEngSt	Performance Characteristics of Nokon cable based series elastic actuator	1 year

Most important research grants since 2011

No.	Research Project	Funding Period	Name(s) of the principal investigator(s)	Funding source and reference number
1	Monitoring Osseointegrated Prosthetics	2015	McDaid, A.J.	US Office of Naval Research
2	Preventing development of impaired gait patterns after stroke	2015 - 2017	McDaid, A.J.	Auckland Medical Research Foundation
3	Robotic 'therapy and assessment' to understand the development of muscle function in children with cerebral palsy	2015 - 2018	McDaid, A.J.	RSNZ Marsden Grant

4	Intelligent robotic gait therapy and physiological assessment for children with cerebral palsy	2015 - 2017	McDaid, A.J.	Cure Kids NZ
5	Soft robotic prosthetic hand	2014 - 2015	McDaid, A.J.	New Zealand Artificial Limb Service
6	A physiological robot-NMES (rNEMS) wrist/hand therapy system for people with Cerebral Palsy	2013 - 2015	McDaid, A.J.	Faculty Research Development Fund (FRDF) - UoA