

Associate Professor Iain A. Anderson, PhD

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Head of the Biomimetics Lab

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and

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Born on November 13, 1954 in Dundee Scotland



Scientific Career

- Since 2013 Founder, Board Member and Chief Scientist for StretchSense Ltd.
- Since 2006 Founder and Group Leader of the Biomimetics Lab, ABI
- Since 2002 Founding Principal Investigator for Auckland Bioengineering Institute
- Since 2000 Academic, Department of Engineering Science, University of Auckland
- 1985 - 2000 Research Engineer Department of Scientific and Industrial Research/ Industrial Research Ltd. (Machine dynamics, vibration troubleshooting, modal analysis)
- 1996 PhD, Dept. of Engineering Science, University of Auckland
- 1983 - 1985 Mechanical Engineer (Product Design), F&P Laundry Products
- 1983 Master of Engineering, Dept. of Engineering Science, University of Auckland

Scholarships, Awards and Faculty Functions

- 2016 Vice Chancellor's Commercialisation Medal – University of Auckland.
- 2014 Kiwinet Research Commercialization Awards – Finalist in Researcher Entrepreneur Award category
- 2013 NZ Innovators Awards – Emerging Innovator (Awarded to my start-up company Stretchsense Ltd.)
- 2013 NZ Innovators Awards – Innovation in Design and Engineering (Awarded to my start-up Stretchsense Ltd.)
- 2013 Visiting Professor- LMTS Microsystems for Space Technologies Lab, Neuchatel, Switzerland
- 2011 Benjamin Meaker Visiting Professorship 2011/2012- Awarded by the Institute of Advanced Studies University of Bristol
- 2008 Best Paper Award 'Towards Autonomous Robotics Systems 2008' conference.
- 2008 Finalist (Environment Category) Montana New Zealand Book Awards

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. Lo H.C.; Gisby T.A.; Calius E.P.; Anderson I.A.: Transferring electrical energy between two dielectric elastomer actuators. *Sensors and Actuators A: Physical*, 212, p. 123-126, 2014.
2. Gisby T.A.; O'Brien B.M.; Anderson I.A.: Self-sensing feedback for dielectric elastomer actuators. *Applied Physics Letters*, 102(19), 4 pages, 2013.
3. Anderson I.A.; Gisby T.A.; O'Brien B.M.; McKay T.; Calius E.P.: Multi-functional dielectric elastomer artificial muscles for soft and smart machines. *Journal of Applied Physics*, 112(4), 20 pages, 2012.
4. O'Brien B.M.; Anderson I.A.: An artificial muscle ring oscillator. *IEEE/ASME Transactions on Mechatronics*, 17(1), p. 197-200, 2011.
5. Anderson I.A.; Tse T.C.H.; Inamura T.; O'Brien B.M.; McKay T.; Gisby T.: A soft and dexterous motor. *Applied Physics Letters*, 98(12), 3 pages, 2011.
6. Anderson I.A.; Ieropoulos I.; McKay T.; O'Brien B.M.; and Melhuish C.: Power for Robotic Artificial Muscles. *IEEE Transactions on Mechatronics*, 16(1), p.107-111, 2011.
7. McKay T.; O'Brien B.M.; Calius, E.P.; and Anderson I.A.: Self-priming dielectric elastomer generators. *Smart Materials and Structures*, 19(5), 7 pages, 2010.
8. McKay T.; O'Brien B.M.; Calius, E.P.; and Anderson I.A.: An Integrated, Self-Priming Dielectric Elastomer Generator, *Applied Physics Letters*, 97(6), 2 pages, 2010.
9. * O'Brien B.M.; Calius, E.P.; Inamura T.; Xie S.; Anderson I.A.: Dielectric Elastomer Switches for Smart Artificial Muscles. *Applied Physics A*, 100(2), p. 385-389, 2010.
10. Anderson I.A.; Hale T.; Gisby T.; Inamura T.; McKay T.; O'Brien B.M.; Walbran S.; Calius E.P.: A thin membrane artificial muscle rotary motor. *Applied Physics A*, 98(75), p. 75-83, 2009.

B) Other publications

C) Patents

1. Anderson I.A.: Laundry Machines (Suspension component), US 4,625,529, Granted 1986.
2. Anderson I.A.: Gaelic C.J.; Elliott P.L.; Washing Machines, US 4,631,771, Granted December 30, 1986.
3. * Anderson I.A.: McKay T.G.; O'Brien B.M.; Calius E.P.; Gisby T.A.; Xie, S. System and method for dynamic self-sensing of dielectric elastomer actuators, US 8,860,336, B2, Granted 2014
4. O'Brien B.M.; Gisby T.A.; Anderson I.A.: Dielectric elastomer self-sensing using plane approximation, US 9,170,288 B2, Granted 2015
5. Anderson I.A.: O'Brien B.M.; McKay T.G.; Calius E.P.; Gisby T.A.; Walbran, S.H.; Hale, T.S.; Actuator, US 8,638,024 B2, Granted 2014

Supervised graduate students since graduation year 2011 (Completed only)

| No. | Last Name, First Name | Degree | Title/subject of the dissertation | Duration of thesis |
|-----|-----------------------|--------|--|-------------------------|
| 1 | McKay, Thomas | PhD | Artificial Muscle Generators | 2007 - 2011 |
| 2 | Gisby, Todd | PhD | Smart Artificial Muscles | 2006 - 2011 |
| 3 | Walbran, Scott | PhD | Interfacing humans with artificial muscles | 2006 - 2013 |
| 4 | Jowers, Casey | PhD | Tools for Neuroscience: Developing Devices to Study Brain Injury and Disease | 2009 - 2014 (in review) |
| 5 | Lo, Andrew | PhD | Regulating energy from small scale dielectric elastomer generators | 2010 - 2014 |
| 6 | Kim, Jungjoo | PhD | The Development of Cell Gym and its applications to tissue engineering | 2010 - 2014 |
| 7 | Munro, Jacob | PhD | Computational modelling of retro-acetabular pathology after total hip arthroplasty | 2008 - 2014 |
| 8 | Xu, Daniel | PhD | Wearable Motion Capture Stretch Sensors | 2012-2016 |

Most important research grants since 2011

| No. | Research Project | Funding Period | Name(s) of the principal investigator(s) | Funding source and reference number |
|-----|--|----------------|--|-------------------------------------|
| 1 | Finding Links between Knee Injuries and Cartilage Degeneration | 2011 | Shim, V. (PI) Anderson, I. (AI) Cornish, J. (AI) | Health Research Council NZ |
| 2 | Electronic artificial muscle sensing/actuation for a robotic fish (Office for Navy Research) | 2012 | Anderson, I. | ONRG N62909-12-1-7096 |
| 3 | Artificial Muscle Logic: The Next Generation | 2013 - 2014 | Anderson, I. | US Army Research |