

## CURRICULUM VITAE

**NAME:** RAYMOND LINDSAY HOPE

**YEAR OF BIRTH:** 1973

### ACADEMIC QUALIFICATIONS:

Bachelor of Engineering 1994 The University of Queensland  
(Mechanical -1st Class Hons.)

Doctor of Philosophy 1999 The University of Queensland

### PROFESSIONAL QUALIFICATIONS:

Member, The Institution of Engineers Australia  
Chartered Professional Engineer  
Registered Professional Engineer of Queensland

### AWARDS:

- 2012 Winner, National Engineering Excellence Award, Engineers Australia, Canberra, Australian Capital Territory
- 2012 GHD Overall Winner, Engineering Excellence Award, Newcastle Division, New South Wales
- 2012 UGL Innovation in Sustainable Engineering Award, Newcastle Division, New South Wales
- 2012 Winner, Engineering Excellence Award, Newcastle Division, New South Wales
- 2010 Finalist, Engineering Excellence Awards, Engineers Australia, Queensland Division
- 2001 High Commendation, Engineering Excellence Awards, Engineers Australia, Queensland Division
- 1997 Award for excellence, most outstanding paper Rapid Prototyping Journal

### CAREER APPOINTMENTS:

- 2005 - Vice President Engineering, Gilmore Engineers|e3k
- 2003 - 2005 Manager, New Product Division, Gilmore Engineers Pty Ltd|e3k
- 1998 - 2003 Research and Development Engineer, Gilmore Engineers Pty Ltd|e3k
- 1995 - 1998 Postgraduate Research Scholar, The University of Queensland
- 1995 - 1997 Tutor, Mechanical Engineering Department, The University of Queensland.

### PUBLICATIONS:

- Hope, R.L., Roth, R.N., Riek, A.T. (1995) "Rapid generation of large objects", *Proc. First Asia/ Pacific Conference on Rapid Product Development*, QMI, Brisbane.
- Hope, R.L., Roth, R.N., Riek, A.T. (1996) "Layer Building With Sloping Edges For Rapid Prototyping Of Large Objects", *Proc. 5th European Conference on Rapid Prototyping and Manufacturing*, June 4-6, Helsinki, Finland, pp 47-57.
- Hope, R.L., Jacobs, P.A., Roth, R.N. (1997) "Rapid prototyping with sloping surfaces", *Rapid Prototyping Journal*, vol 3, no.1, pp 12-19.
- Hope, R.L., Roth, R.N., Jacobs, P.A. (1997) "Adaptive slicing with sloping layer surfaces", *Rapid Prototyping Journal*, vol 3, no.3, pp 89-98.

## BIOGRAPHICAL NOTES

Dr Raymond L Hope is the Vice President Engineering, e3k Global, the New Product Division of Gilmore Engineers Pty Ltd, Research, Development and Commercialisation Specialists.

He received his Bachelor of Mechanical Engineering degree in 1994, with First Class Honours from The University of Queensland, Australia. He completed a Ph.D. degree in the field of Mechanical Engineering in 1998, also from The University of Queensland. His postgraduate research examined layered manufacturing of large objects, and in particular techniques to improve speed and accuracy such as five-axis profiling of layer surfaces and adaptive slicing. The work was mainly computational, with particular emphasis on developing software to slice computer solid models and produce numerical code to control five axis machines to cut layers from sheet material.

Through his research, Raymond developed an interest in Rapid Prototyping and Layered Manufacturing and has developed contacts around the world. He has published 4 papers in journals and engineering conferences at the International level, and received an award for excellence for the most outstanding paper in the 1997 Rapid Prototyping Journal published by MCB University Press, UK, as main author.

In 1998, Raymond Hope joined Gilmore Engineers Pty Ltd as a specialist Research and Development Engineer. He has worked on numerous design projects and developed expertise in concept generation and refinement, three dimensional computer modelling, prototype construction and testing, and Finite Element Analysis (FEA).

e3k Global specialises in Industrial Research and Development, particularly New Product Development and Commercialisation for Global Products. This activity requires a broad knowledge of Engineering, from which ideas and fresh approaches to problem-solving can be drawn. Complete products which satisfy an identified market and consumer demand are created from initial concepts, or partially developed devices. This requires a highly creative and experienced approach, together with cross-fertilisation of ideas from other disciplines to enable them to be world competitive and suitable for export. A complete idea-generation, design, prototype development and testing service is provided. Commercialisation and manufacture of the product is considered constantly with assistance being given in protecting Intellectual Property, conducting market research, liaison with regulatory authorities, and importantly interacting with sources of finance.

e3k has been the recipient of 6 Engineering Excellence Awards from Engineers Australia. e3k was a National Winner in 2012, as well as taking 3 Awards in the Newcastle Division, New South Wales, including the GHD Overall Winner, and the UGL Innovation in Sustainable Engineering Award for engineering design and testing of the SeaUrchin marine power generator. Dr Hope was on hand to receive these Awards on behalf of the Engineering Team he had led to achieve them. e3k received a High Commendation in 2001 and was a finalist in 2010 in the Queensland Division Awards with projects sponsored by the Queensland Academy of Sport and Leighton Contractors Pty Ltd respectively.

In February 2014, Atlantis Resources Limited, a company grown from the technology developed by e3k in the years 2000 to 2004, was admitted to trade on the London Stock Exchange. The world-patented technology now part-owned by Morgan Stanley, relates to underwater tidal renewable power generation turbines. Dr Hope proposed the concept for the turbine that was originally patented, and played a critical role in the development and testing of the initial prototype turbines based on that concept.

Dr Hope led his talented Engineering team on the development of the medical device named "Agilitas". This device which was wholly developed by e3k over a period of five years and

was launched for commercial sale by Bright Devices Pty Ltd, part of the Gilmore Engineers Group in 2013. It is a “smart” visual cueing device designed to assist persons suffering primarily from ‘Freeze of Gait’ associated with Parkinson’s Disease.

In 2010, Gilmore Engineers received an Australian International “Design Award” from Good Design Australia, in the Business and Technology Category, for their contribution to the development of the FLAT hydraulic stabilising mechanism for use on any item with legs, skids or footings. Dr Hope was part of the team that developed the intellectual property in the initial design of this product. He also redesigned the prototype for cost effective and compact manufacturing processes in plastics. The product is now available for sale through outlets worldwide.

As part of the e3k team, Dr Hope was involved in the optimisation and FEA analysis of a new mechanical fastening system known as “Joinlox”. This product went on to win “Invention of the Year” on the ABC Television “New Inventors” program in 2008. It is now commercially available from Joinlox Pty Ltd, supported by Xstrata Technology who signed a global licensing agreement in 2010.

As part of the Gilmore Engineers team, Raymond has investigated over 250 incidents and prepared expert engineering evidence for the legal profession of Australia. This evidence, provided by Gilmore Engineers Pty Ltd, has ranged from detailed failure analysis of major industrial accidents, through patent and copyright actions, to motor vehicle accident reconstruction and personal injury. Personal injury reports particularly include ergonomic analysis and a risk assessment of the system of work, with traumatic injury in industrial workplaces being an area of speciality. A noteworthy case was Parliament House, Canberra, where in 2004 he inspected and analysed the cause of approximately one million dollars worth of accidental water damage to the Cabinet Room and the Prime Minister’s office.