Dr. Peter G. Hall

Sarah ****

July 16, 2012

Dr Peter Gavin Hall is an extensively published Australian researcher known for his work in mathematical statistics and probability theory. He currently works at the University of Melbourne [1] and his greatest contributions are in the area of non-parametric statistics. Hall has authored well over 500 journal articles, received numerous awards and has served on many editorial boards for prominent statistical journals [2].

Peter Hall was born in 1951 to Ruby Payne-Scott and Bill Hall. They lived in Oatley, a suburb of Sydney NSW [3]. Ruby was one of Australias most prominent female radio physicists. She worked for RPL, CSIR and later CSIRO. Bill was, for most of his life, a telephone mechanic and intensely proud of his wifes success. Bill and Ruby met while both members of the Sydney Bush Walkers Club [3]. Hall also has a younger sister Fiona Margaret Hall who is now one of Australias leading contemporary artists, emerging as a photographer in the 1970s [4]. Hall completed a Bachelor of Science at the University of Sydney in 1978, and a Master of Science at The Australian National University in Canberra two years later, not to long after Hall completed his Doctor of Philosophy at the University of Oxford in the United Kingdom. During his time at Oxford Halls advisor was Sir John Frank Charles Kingman [5], the Professor of Mathematics there, whose interest also lay in statistics. Kingman received the Royal Society of Statistics Guy Medal (Silver) [6] in 1981, a medal Dr Hall himself would receive in 2011. He lectured at the University of Melbourne briefly then moving to lecture at the Australian National University, where he received the Australian Mathematical Society Medal in 1986. In 1987 he was awarded a fellowship from the Australian Academy of Science and the Edgeworth David Medal from the Royal Society of New South Wales. Over the next 15 years Hall continued to win awards and funding as well as two honorary Doctors of Science and recognition from Universities in Belgium, England and Scotland [7]. He held the Presidency of the Bernoulli Society based in the Netherlands from 2001-2003 [8].

Dr Hall is currently an Australian Laureate Fellow at the University of Melbourne, a position funded by the Australian government which includes Project funding as well as salary. He supervises a number of post graduate statistics students and continues to complete research and be published, with a number of papers published last year [1]. The Australian Research Council, which currently funds Dr Halls position, awards its fellowships to Australian researchers of international repute. Their mission is to help advance Australias status in the international academic community and benefit Australia [9]. In 2010 Dr Hall received the Szekeres Medal, which is awarded

by the Australian Mathematics Society. It was established in 2001 and is awarded in even years. The award is one of three awards the society has and is considered the career award. That is the award recognizes the receivers career, or their sustained contribution, to mathematic academia specifically over the 15 years prior [2]. Dr Hall also received the Royal Society of Statistics Guy Medal (Silver) in London in June 2011. The society referenced a number of Halls papers including *Empirical Functionals and Efficient Smoothing Parameter Selection* (JRSS B, (1992), with Iain Johnstone), read to Society in 1991, and *Fractal Analysis of Surface Roughness by using Spatial Data* (JRSS B, (1999) with S. Davies) read to the Society in 1998 [8]. Dr Hall also has an appointment at the University of California Davis in the United States. The Department of Statistics at UC Davis is celebrating his 60th birthday by holding a workshop to discuss recent developments in the analysis of high dimensional data in May this year. The event is co-sponsored by the Mathematics Department [10]. Later in July, Dr Hall is scheduled to talk at the 8th World Congress in Probability and Statistics, jointly held by the Bernoulli Society (Netherlands) and the Institute of Mathematical Statistics (USA). The Congress is scheduled every four years and in 2012 is to be held in Istanbul. Dr Hall will speak as part of a group organised by Hans-Georg Mueller from UC Davis on functional data analysis [11].

Dr Peter Hall has made many important contributions to probability theory and statistical science. His paper: Theoretical comparison of bootstrap confidence intervals [12], which deals with a method of re-sampling used to obtain estimates of summary statistics, has been reprinted in the Breakthroughs in Statistics Collection [8]. On a similar topic Hall authored The Bootstrap and Edgeworth Expansion, which was published in 1997 [13]. Dr Halls papers on aspects of non-parametric statistics are considered ground breaking by the Royal Society of Statistics. These include his work on the bootstrapping method, but also include kernel density estimation, another method of estimating a variables distribution non-parametrically [8]. In the areas of probability theory and practise and theory of statistics Dr Hall has contributed to areas such as regression, extreme value theory, error measurement, limit theory and stochastic geometry.

Peter Halls contribution to statistics is significant. His many awards and the recognition he has receive from multiple international universities and organisations is evidence of how universal his research is. The applications are immense covering economics, engineering, physical and biological science. He is still completing research, participating is academic society and teaching and will probably continue to do so for many years to come.

References

[1] Staff profiles. In *Department of Mathematics and Statistics*, Melbourne, Australia, 2009. University of Melbourne. Accessed 23 March 2012, `http://www.ms.unimelb.edu.au/Personnel/profile.php?PC_id=308`.

[2] The george szekeres medal. Canberra, Australia, 2010. Australian Mathematical Society. Accessed 23 March 2012, `http://www.austms.org.au/The+George+Szekeres+Medal`.

[3] W. M. Goss and Richard X. McGee. *Under the Radar: The First Woman in Radio Astronomy: Ruby Payne-Scott.* Springer-Verlag, Berlin, 2010.

[4] Artist profiles. In *Australian Stories*, Canberra, Australia, 2012. Australian Government. Accessed 23 March 2012, `http://australia.gov.au/about-australia/australian-story/fiona-hall`.

[5] Kingman profile. In *Mathematics Genealogy Project*, North Dakota, USA, 2012. North Dakota State University. Accessed 23 March 2012, `http://www.genealogy.math.ndsu.nodak.edu/id.php?id=79323`.

[6] Kingman profile. In *School of Mathematics and Statistics*, Fife, Scotland, 2009. University of St Andrews. Accessed 23 March 2012, `http://www-history.mcs.st-andrews.ac.uk/Mathematicians/Kingman.html`.

[7] Hall profile. In *Encyclopedia of Australian Science*, Melbourne, Australia, 2011. University of Melbourne. Accessed 23 March 2012, `http://www.eoas.info/biogs/P004649b.html`.

[8] The guy medal. In *Royal Society of Statistics eNews*, London, England, 2011. Royal Society of Mathematics. Accessed 23 March 2012, `http://www.rssenews.org.uk/articles/6.20110602`.

[9] Information on funding. In *Australian Research Council*, Canberra, Australia, 2011. Australian Government. Accessed 23 March 2012, `http://www.arc.gov.au/`.

[10] Staff profiles. In *Department of Statistics*, California, USA, 2012. University of California Davis. Accessed 23 March 2012, `http://www.stat.ucdavis.edu/~mueller/peterhall2012/`.

[11] Scheduled speakers. In *8th World Congress in Probability and Statistics*, Netherlands, 2012. Bernoulli Society. Accessed 23 March 2012, `http://www.worldcong2012.org/?p=welcome`.

[12] Peter Hall. Theoretical comparison of bootstrap confidence interval. *Annals of Statistics*, 16(3):927–953, 1998.

[13] Peter Hall. *The Bootstrap and Edgeworth Expansion*. Springer-Verlag, New York, 1997.