Winners of the 2010 Awards of the AustMS

Winner of the AustMS Medal* for 2010

At the recent AustMS Annual Meeting, the Medal of the Australian Mathematical Society for 2010 was awarded to Professor Kate Smith-Miles.

Kate was born in Ballarat and obtained her PhD from the University of Melbourne in 1996. Along with three years at CSIRO and three years at Deakin University, her career has mostly developed at Monash University.

Kate Smith-Miles and Nalini Joshi

Kate's research has focused on interdisciplinary applications of the mathematical sciences, and is characterised by its extraordinary breadth as well as an exceptional attention to mathematical rigour. As a measure of its breadth, she has held chairs in three different disciplines (IT, Engineering, and now Mathematical Sciences). She is especially known for her study of the differential equations that describe the behaviour of neural networks proposed to mimic the workings of the human brain. Her innovative extensions of these methods for more general optimisation problems, exposing these as chaotic systems, have been highly influential. She has studied the stem cell decision making process, and has shown that 'edge-of-chaos' regions hold the key to explaining how a stem cell can suspend its convergence to a stable fixed state.

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*The Australian Mathematical Society Medal is awarded to a member of the Society under the age of 40 years for distinguished research in the mathematical sciences.

Kate's work in practical data mining applications led her to consider the ubiquitous problem of selecting algorithms from a portfolio, achieving advances in machine learning, forecasting, and optimisation. More recently she has utilised the power of linear algebra and tensor analysis methods to achieve world-leading results in image analysis. She is also the only mathematician in Monash's Bionic Eye project.

Kate has authored over 200 papers, books and book chapters, and has attracted nine ARC grants. She is a Fellow of the Australian Mathematical Society, as well as a Fellow of Engineers Australia.

Winner of the George Szekeres Medal* for 2010

At the recent AustMS Annual Meeting, the George Szekeres Medal for 2010 was awarded to Professor Peter Hall.

Peter Hall is one of the most influential statisticians of our time. He has made fundamental contributions to nonparametric modelling, probability theory, bootstrap, Edgeworth expansion, wavelets, ill-posed inverse problems, fractals-based methods, high-dimensional statistical learning, and many other areas of statistics. His exceptional record of research accomplishment is evidenced by his numerous publications in top ranking journals. He is one of the most prolific and celebrated researchers in statistics and has published four highly regarded books and over 550 widely cited articles.

Peter Hall and Nalini Joshi

Peter's research addresses important problems in statistics and has resulted in new techniques that have inspired considerable follow-up research. As a result, he is one of the top ten most highly cited mathematical scientists, according to

*The George Szekeres Medal is awarded in even-numbered years to a member of the Society for an out standing contribution to the mathematical sciences in the 15 years prior to the year of the award.

Thomson ISI InCites. He has pioneered many areas of research, including providing an understanding of nonparametric deconvolution, improving and providing an understanding of bootstrap-based methods, determining the rates of convergence for cross-validation, studying the mean-square error properties of wavelet methods, addressing challenging issues in isotonic regression, quantifying surface roughness using fractal based methods, inventing new techniques and theories for high-dimensional regression and classifications, among others. His work has had significant impact on developments in science and engineering.

Peter's service to the mathematical community is equally outstanding and includes serving on numerous editorial boards, as Presidents of the Bernoulli Society for Mathematical Statistics, the Australian Mathematical Society and the Institute of Mathematical Statistics, as Secretary (Physical Sciences) and Vice-President of the Australian Academy of Science, and on numerous national and international review boards and committees.