

## Curriculum Vitae

<p><b>Peter Stratton</b>                      5 McCracken St                      Wishart, QLD, 4122, Australia</p> <p style="text-align: right;">Home: +61 (0)7 3342 2412                      Mobile: +61 (0) 432 232 451  <a href="mailto:stratton@itee.uq.edu.au">stratton@itee.uq.edu.au</a></p> <p>Born: 5<sup>th</sup> April 1969, Brisbane, Australia</p>	
<b>AIMS</b>	<ul style="list-style-type: none"> <li>• To understand complex dynamical activity in networks of neurons in the brain and how such dynamics can perform purposeful computation.</li> <li>• To understand how experience can cause computationally useful biases in dynamical activity through mechanisms such as short and long term synaptic plasticity.</li> <li>• To model causes of nervous system dysfunction for both guidance of potential therapeutic measures and to further inform computational function.</li> </ul>
<b>EDUCATION</b>	<p>2002  <b>Doctor of Philosophy</b> in the field of Computer Science.                      University of Queensland, Australia.                      "A situated cortical model exhibiting attention, learning and memory:                      Implications for cognition."</p> <p>1990  <b>Bachelor Of Science (Hons)</b> - Computer Science.                      University of Queensland, Australia.</p>
<b>ACADEMIC APPOINTMENT</b>	<p>2/2007 – Present  <b>Research Fellow</b> – Queensland Brain Institute, Australia.                      Working with a multi-disciplinary team of neuroscientists, computer scientists and engineers investigating neural mechanisms of spatial and conceptual representation and navigation, I provide the interdisciplinary bridge between these diverse fields. My role is to understand and construct computational models of both the biology and the potential engineering applications of the computational principles that are implemented by nervous systems.</p>
<b>PROFESSIONAL MEMBERSHIPS</b>	<p>Member, American Association for the Advancement of Science (AAAS).                      Member, ARC Complex Open Systems Research Network.</p>
<b>BUSINESS EXPERIENCE</b>	<p>1/2006 – 2/2007  <b>Manager – MineScape Development</b> – Mincom Ltd:                      Managed a team of ten developers, testers and documentation writers to provide all software development requirements for one of the leading mine planning CAD packages in the world.</p> <p>9/2004 – 12/2005  <b>Project Leader – MineScape</b> – Mincom Ltd:                      Managed all work for a strategically pivotal new client based in Russia.</p> <p>3/1996 – 8/2004  <b>Software Engineer and Senior Software Engineer – MineScape</b> – Mincom Ltd &amp; Mincom USA:                      Programming of 3 large applications for visualization, CAD and information management in the mining industry. For several years was based in Denver, USA, providing software and support to all North American clients and  <b>PhD student</b> – University of Queensland (part time until submitted in 2001).</p>

<b>JOURNAL ARTICLES</b>	<p><b>Peter Stratton</b> and Janet Wiles. <u>Self-sustained non-periodic activity in a network of spiking neurons: the contribution of local and long-range connections and dynamic synapses</u>. <i>NeuroImage</i>, vol. 52, pp. 1070-1079, 2010.</p> <p>Journal Impact Factor: 5.694. Complex activity in the brain is hypothesised to underlie its flexibility and sophisticated processing capability, and is associated with memory retrieval, planning, problem solving and day dreaming. Until now, no brain models have been able to indefinitely self-sustain such activity at realistic firing rates; in this study we demonstrate how it can be achieved.</p>
	<p><b>Peter Stratton</b>, Gordon Wyeth and Janet Wiles. <u>Calibration of the Head Direction Network: a role for Symmetric Angular Head Velocity cells</u>. <i>Journal of Computational Neuroscience</i>, vol. 28, pp. 527-538, 2010.</p> <p>Journal Impact Factor: 2.750. The proposed calibration mechanism of the mammalian head direction system suggests a requirement for a certain neuron type in the brain (called symmetric head angular velocity cells), the existence of which has previously been unexplained.</p>

<b>BOOK CHAPTERS &amp; CONFERENCE PAPERS</b>	<p><b>Peter Stratton</b> and Janet Wiles. <u>Complex Spiking Models: A Role for Diffuse Thalamic Projections in Complex Cortical Activity</u>. To appear In Springer LNCS, 2010.</p>
	<p>Janet Wiles, David Ball, Scott Heath, Chris Nolan and <b>Peter Stratton</b>. <u>Spike-time robotics: a rapid response circuit for a robot that seeks temporally varying stimuli</u>. To appear In Australian Journal of Intelligent Information Processing Systems, 2010.</p>
	<p><b>Peter Stratton</b>, Michael Milford, Janet Wiles and Gordon Wyeth. <u>Automatic Calibration of a Spiking Head-Direction Network for Representing Robot Orientation</u>. In <i>Proceedings of the Australasian Conference on Robotics and Automation</i>, Sydney, Australia, 2009.</p>
	<p><b>Peter Stratton</b> and Janet Wiles. <u>A role for symmetric head-angular-velocity cells: Tuning the head-direction network</u>. <i>Frontiers in Systems Neuroscience</i>, 2009 (COSYNE'09). (Abstract only)</p>
	<p><b>Peter Stratton</b> and Janet Wiles. <u>Comparing Kurtosis Score to Traditional Statistical Metrics for Characterizing the Structure in Neural Ensemble Activity</u>. In M. Marinaro et al., editors, <i>Dynamic Brain – from Neural Spikes to Behaviors</i>, Springer LNCS V 5286, 2008, pp.115-122.</p>
	<p><b>Peter Stratton</b> and Tom Downs. <u>Biologically-plausible Hebbian learning and hierarchical feature extraction</u>. In T. Downs et al., editors, <i>Proceedings of the Ninth Australian Conference on Neural Networks</i>, University of Queensland, 1998, pp.250-254.</p>
	<p><b>Peter Stratton</b> and Tom Downs. <u>The neural basis of expectation with preliminary applications</u>. In B. Verma and X. Yao, editors, <i>Intl Conference on Computational Intelligence and Multimedia Applications</i>, 1997, pp.135-139.</p>