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CURRICULUM VITAE AND RESEARCH INTERESTS

Michel Pasquier is associate professor in the School of Computer Engineering at NTU. He is also the co-founder and former director of the *Centre for Computational Intelligence (C2i)*, under the Intelligent Devices and Systems (IDeAS) research cluster. Dr. Pasquier received a diploma of Electrical Engineering (Automation) and a PhD degree in Computer Science (AI) in 1985 and 1988, respectively, from the National Polytechnic Institute of Grenoble (INPG), France. He left the LIFIA laboratory (now INRIA) in 1989 for the Science City of Tsukuba, Japan, where he was a researcher at the Electro-Technical Laboratory (ETL/AIST) until 1992, then at Sanyo Electric's Intelligent Systems Laboratory. In 1994 he joined NTU, where he has been teaching Artificial Intelligence and other Computer Science courses.

Dr. Pasquier's main research interests include cognitive computing and systems, adaptation and learning processes, knowledge discovery, as well as nature-inspired methods for approximate reasoning, optimization, and planning. He has published, led projects, and served as consultant in many application areas including intelligent robotics, automotive and transportation systems, education and online learning, medical diagnosis and healthcare, business intelligence and financial engineering and, more recently, humanized interfaces. He has 20 years of expertise in developing intelligent software and systems in France, Japan, and Singapore, including some collaboration with the INSA and INRIA in France, AIST and Tokyo U. in Japan, CMU and MIT in the USA, etc.

Dr. Pasquier's research stems from his fascination for *knowledge* and its *construction* – in both humans and machines. Current work aims particularly at investigating and devising brain-inspired, functional and computational models of the memory structures and learning processes that underlie human problem-solving activities and decision-making tasks. The neurocognitive informatics approach adopted studies and improves upon statistical learning algorithms, evolutionary connectionist systems, fuzzy semantic rule-based models, and other techniques for data clustering, feature selection, pattern recognition, and knowledge extraction, converging toward an architectural blueprint for artificial minds.

One key area where Dr. Pasquier's research and pedagogical interests meet is the realization of personal assistants and tutors: cognitive-affective intelligent training systems that are essentially human-like, user-centered adaptive systems for self-learning, ideally available anywhere any time on computing devices, on mobile phones, on the web, etc. His vision is that of building intelligent systems that *just work* i.e., that learn to accomplish complex tasks just like humans do, and can be used "like we use a pen or a piano, without thinking of them as technology, or even thinking of them at all."

RECENT REPRESENTATIVE PUBLICATIONS

1. R.J. Oentaryo and M. Pasquier, "RFCMAC: A reduced rule-based localist neuro-fuzzy system for knowledge extraction," *IEEE Transactions on Neural Networks*, 2009, to appear.
2. C. Quek, M. Pasquier, and B. Lim, "A novel self-organising fuzzy rule-based system for modelling traffic flow behaviour," *Expert Systems with Applications*, 47(4), 2009.
3. H. Huang, M. Pasquier, and C. Quek, "Financial market trading system with a hierarchical co-evolutionary fuzzy predictive module," *IEEE Transactions on Evolutionary Computation*, 13(1): 56-70, 2009.
4. R.J. Oentaryo, M. Pasquier, and C. Quek, "GenSoFNN-Yager: a novel brain-inspired generic self-organizing neuro-fuzzy system realizing Yager inference," *Expert Systems with Applications*, 35(4): 1825-1840, 2008.
5. W. Duch, R.J. Oentaryo, and M. Pasquier, "Cognitive architectures: where do we go from there?" *Proc. of the International Conference on Artificial General Intelligence (AGI 2008)*, Memphis, 1-3 March 2008.
6. M. Pasquier and R.J. Oentaryo, "Learning to drive the human way: a step towards intelligent vehicles," *International Journal of Vehicle Autonomous Systems*, 6(1/2): 24-47, 2008.
7. C. Quek, M. Pasquier, and N. Kumar, "A novel recurrent neural network-based prediction system for option trading," *International Journal of Applied Intelligence*, 29(2): 138-151, 2007.
8. C. Quek, M. Pasquier, and B. Lim, "POP-TRAFFIC: A novel fuzzy-neural approach to road traffic analysis and prediction," *IEEE Transactions on Intelligent Transportation Systems*, 7(2): 133-146, 2006.
9. K.T. Seow and M. Pasquier, "Supervising passenger land-transport systems," *IEEE Transactions on Intelligent Transportation Systems*, 5(3): 165-176, 2004.
10. K.K. Ang, C. Quek, and M. Pasquier, "POPFNN-CRI(S): Pseudo outer product based fuzzy neural network using the compositional rule inference and singleton fuzzifier," *IEEE Transactions on Systems, Man, and Cybernetics, Part B*, 33(6): 838-849, 2003.
11. P.W. Ng, C. Quek, and M. Pasquier, "SPADES: Applying architectural patterns to the design of supervisory control systems," *Intelligent Systems, Techniques and Applications*, C.T. Leondes (ed.), CRC Press, 6: 1773-1829, 2002.
12. M. Pasquier, C. Quek, and M. Toh, "Fuzzylot: a novel self-organising fuzzy-neural rule-based pilot system for automated vehicles," *Neural Networks*, 14(8), 1099-1112, 2001.