How Learning Classifier Systems Can Conquer Important Modern AI Problems

Modern Artificial Intelligence seeks to go beyond solving isolated problems. This keynote suggests how Learning Classifier Systems can achieve this goal. Through techniques such as transfer learning, multitask learning and lateral learning, it seeks to approach artificial general intelligence. Here this relates to problem solving and reasoning that mimics the range of human cognition, including perception, representation, reasoning, learning and action. Learning Classifier Systems were conceived as cognitive systems 40 years ago, where this heritage has been augmented with powerful methods to allow scaling to similar and related problem domains. But learning is also in a transparent manner so humans can visualise the learnt and reusable knowledge.

Will Browne
A/Prof. Browne's research focuses on applied cognitive systems. Specifically, how to use inspiration from natural intelligence to enable computers/machines/robots to behave usefully. This includes cognitive robotics, learning classifier systems, and modern heuristics for industrial application. A/Prof. Browne has been co-track chair for the Genetics-Based Machine Learning (GBML) track and is currently to co-chair for the Evolutionary Machine Learning track at Genetic and Evolutionary Computation Conference. He has also provided tutorials on Rule-Based Machine Learning at GECCO, chaired the International Workshop on Learning Classifier Systems (LCSs) and lectured graduate courses on LCSs. He has recently co-authored the first textbook on LCSs: Urbanowicz and Browne 'Introduction to Learning Classifier Systems, Springer 2017'.   Currently he leads the LCS theme in the Evolutionary Computation Research Group at Victoria University of Wellington, New Zealand.

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