

TITLE: The Ineluctable Entanglement of Human and Artificial Intelligence

ABSTRACT:

The present talk builds upon a simple observation. This is that any artefact that can be deemed to act intelligently has been built to do so by human beings using their own knowledge. Strangely enough, this “ineluctable entanglement” between artificial intelligence (AI) and human intelligence has not been a major focus of inquiry within the field of AI. The purpose of the present talk is to start to redress this situation. I will begin with a brief consideration of some well-known AI systems and their achievements. In each case, I consider what has actually been achieved and how it should be characterized. Generalizing from these examples, I argue that all intelligence (human or artificial) is agent-like in nature, that is, it is always nested within a network of agents. After this, I consider various kinds of intelligence, including “group minds” and “human artificial intelligence”, which is AI where human decisions are embedded in an artificial system. Within this enlarged context, AI may perhaps be more accurately designated as artificially-aided intelligence. Then I consider the ‘big win’ in AI, which has to do with combinatorial optimisation, including constraint satisfaction search. Here, I consider how this is related to the main topic of the talk, and in particular, when combinatorial optimisation ‘becomes’ AI. In the last part of the talk I will consider an area where artificially-aided intelligence might be applied. This is the monitoring and even ‘umpiring’ of specific topics of intellectual discourse, especially when there are two (or more) entrenched points of view and only one of them can be correct. I argue that this situation can be represented as a kind of constraint satisfaction problem, in order to assess the coherence of arguments and knowledge. In this context I describe a particular academic controversy, called the Shakespeare Authorship Question and propose it as a test bed for studying the general problem of argumentation monitoring and assessment. I also argue that discourse and argumentation is a domain where human intelligence would benefit greatly if it was augmented by artificially-aided intelligence.

BIO:

Dr. Richard Wallace has a Ph.D. in Psychology from the University of Oregon and a Masters degree in Computer Science from the University of New Hampshire. For the last 13 years he has worked at the Cork Constraint Computation Centre (4C), recently rechristened as the Insight Centre for Data Analytics, at University College Cork in Ireland. After approximately a decade of work in the behavioural sciences (working both in cognitive psychology and animal behaviour), Dr. Wallace switched to computer science. He has worked primarily in the area of constraint satisfaction for the last 25 years, first as a research associate with Eugene Freuder in New Hampshire and then as a Senior Staff Scientist at 4C. During this time he has made numerous contributions to the field, including significant work on partial constraint satisfaction, local consistency, dynamic constraint satisfaction problems, and heuristics for ordering search. He has also made some contributions in the areas of multi-criteria decision analysis and applying optimization techniques to problems in environmental science.