Rethinking how we build compilers in a heterogeneous world

Location: Room **Servanty**

Scheduled time: **14:00 – 14:45**

Speaker: Michael O'Boyle

Michael O'Boyle is a professor of computer science at the University of Edinburgh. He is best known for his work in incorporating machine learning into compilation and parallelization. He has published over 150 papers, receiving six best paper and two test of time awards. He is an EPSRC established career fellow and a fellow of the BCS.

Abstract

Moore's Law has been the main driver behind the extraordinary success of computer systems. However, with the technology roadmap showing a decline in transistor scaling, computer systems are increasingly heterogeneous, specialised and diverse. As it stands, software will simply not fit and current compiler technology is incapable of bridging the gap. We need to fundamentally rethink the role and design of the compiler.

This talk presents some of the results from my 5-year EPSRC Fellowship "Heterogeneous Thinking". It describes some novel approaches to the automatic mapping of legacy software to hardware based on program synthesis and neural machine translation.