



BCS-FACS Evening Seminar **Joint event with the London Mathematical Society**

Tuesday 16 November 2010, 6:00pm



Picture courtesy of Sunok Kang

Professor Peter O'Hearn (Queen Mary, University of London) ***Reasoning about programs using a scientific method***

Reasoning about programs has traditionally been done using deductive reasoning, where mathematical logic is used to make proofs that connect programs with specifications. In this talk Professor O'Hearn describes an approach where an automated reasoning tool approaches program code as a scientist would the natural world. Instead of just deductive logic, versions of abductive reasoning (generation of new hypotheses) and inductive generalization are used in an iterative fashion to discover specifications that describe what programs do, starting from bare code. The resulting specifications are partial or conservative, but the inference/discovery aspect makes it much easier to approach large code bases, quickly, than with the traditional deductive-only approach. Professor O'Hearn reports on experience using a software tool - Abductor, which automates the method - on large open-source code bases, and he speculates on the potential role of 'automated scientific method' in program verification and design.

This talk is based on joint work with Cristiano Calcagno, Dino Distefano and Hongseok Yang.

The venue is the London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS.

Refreshments will be available from 5.30pm.

The seminar is free of charge and open to everyone. If you would like to attend, please confirm by email to paul.boca@googlemail.com by 12th November.