Biological and Mathematical Basis of Interaction Computing

This PhD direction develops the unconventional notion that computation can be based on interactions, as illustrated by what living cells do. Our foundational methods take inspiration from biology, and use include computational algebraic automata theory, category theory (including adjoint functors between computational categories such as finite automata and semigroups, finite graphs, etc.). This PhD work complements and builds on the recent EU-funded BIOMICS project (Biological and Mathematical Basis of Interaction Computing) coordinated by the University of Hertfordshire (see: http://www.biomicsproject.eu/about-us).

The ideal candidate will be self-motivated with good writing and communication skills, an excellent programmer, with a strong first degree in mathematics or computer science, have familiarity with category theory, algebra and/or algebraic automata theory. An computer algebra background would be helpful. Interdisciplinary intellectual interests are essential for success, and any background biology, chemistry, evolution, artificial intelligence/life, and/or cognitive sciences could be very beneficial for this PhD post.

The PhD will be supervised by Prof. Chrystopher L. Nehaniv (C.L.Nehaniv@herts.ac.uk), whom interested candidates are invited to contact via email in the first instance.