Second Symposium on the History and Philosophy of Programming

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We present the *Second Symposium on the History and Philosophy of Programming* (HaPoP), organised as part of the AISB 50th Annual Convention 2014 held at Goldsmiths, University of London, following the first edition organized in 2012 at the AISB/IACAP Joint Convention in Birmingham, UK. This is a scientific event supported by the Commission on the History and Philosophy of Computing (`www.hapoc.org`) of the Division for the History of Science and Technology. The Commission is devoted to the enhancing and understanding of computing by means of historical and philosophical explorations, enforcing collaborations among researchers and promoting scientific and educational activities. The HaPoP Symposia Series is meant to focus explicitly on programming, maintaining the distinguishing characteristic of HaPoC events that combine in a unique blend of historical and philosophical research.

The history and philosophy of computing only started to develop as real disciplines in the '80s and '90s of the previous century. A historical awareness of the evolution of computing not only helps to clarify the complex structure of the computing sciences, but it also provides an insight in what computing was, is and maybe could be in the future. Philosophy, on the other hand, helps to tackle some of the fundamental problems of computing.

That a logico-mathematical-physical object called program is so controversial, even though its very nature is mostly hidden away, is rooted in the wide range of problems, processes and objects that can be solved, simulated, approximated and generated by way of its execution. Given its widespread impact on our lives, it becomes a responsibility of the philosopher and the historian to study the science of programming. The historical and philosophical reflection on programming is the main topic at the core of this workshop, with contributions focusing on the following aspects (and their connections):

1. The history of computational systems, machines and programs
2. Foundational issues and paradigms of programming
3. Methodology of designing, teaching and learning programming

The selection of contributions accepted and invited for presentation at the Symposium clearly reflects the complex patterns connecting these issues in a philosophically and historically aware context.

Martin Loomes (Middlesex University) offers a critical review of the missing dialogue between formalists and software engineers in the context of the software crisis from the 1980s, and suggests a reconsideration of that debate in view of scientific paradigms. Mark Priestley (UCL) analyses the symbolic work underlying the von Neumann architecture. Stephanie Mawler (Virginia Tech) introduces the concept of technosectarianism as a religious metaphor to analyze practices of communities of programmers. Thomas Petricek (University of Cambridge) reconsiders some of the classical problems from the philosophy of science from the perspective of programming language research. Michal Gdoziszewski (University of Warszaw) considers the relation between mathematical knowability and algorithmic learnability which allows him to offer an explanation of the cognitive difficulty of undecidable sentences. John Kadvany (Policy & Decision Science, Menlo Park) analyses the computational strength of Panini grammar and connects it to universal computation. Finally, Graham White (Queen Mary) offers historical and theoretical analyses (in the true spirit of HaPoP events) to study how human practices influence computer technologies, from the low-level of hardware and assembly to the higher level of programming semantics.

We are excited to have reached this further step in consolidating the historical and philosophical reflection on computing. We are convinced this is an essential task not only for historians and philosophers but also for computer scientists themselves in facing the many different challenges of technology and computing.

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