

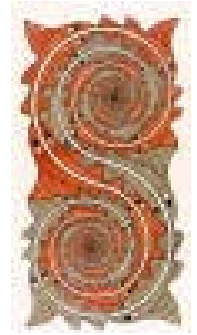


CALL FOR PAPERS

# FInCo 2007

## Foundations of Interactive Computation

satellite workshop of ETAPS 2007  
Saturday 31 March 2007, Braga, Portugal  
[www.cs.brown.edu/sites/finco07/](http://www.cs.brown.edu/sites/finco07/)



The interaction paradigm provides a new conceptualization of computational phenomena, placing the emphasis on interaction rather than on algorithms; concurrent, distributed, reactive, embedded, component-oriented, agent-oriented and service-oriented systems all exploit interaction as a fundamental paradigm. Contemporary approaches to Software Engineering, Artificial Intelligence, Programming Languages, and Networking are all part of this paradigm change. However, a satisfactory unified foundational framework for interactive computation is still lacking, analogous to the one that Turing Machines and lambda-calculus provide for algorithms. Following the success of **FInCo 2005**, this workshop provides an opportunity for researchers to meet and exchange ideas, with the ultimate goal of providing a unified conceptual and formal framework for interactive computation.

Since the 1960's, the practice of computing has unrecognizably changed. Rather than process data in batch mode, we expect our computers and other smart devices to *interact* with us and with each other, and to perform services on our behalf. The paradigm shift from algorithms to interactive computation captures the technology shift from mainframes to networks, wireless devices, and intelligent appliances, from number-crunching to embedded systems and graphical user interfaces, and from procedure-oriented to object-based and distributed computation. The following characteristics distinguish this new, interactive notion of computation:

**Computational Problem:** The notion of a computational problem includes *performing a task* or *providing a service*, rather than being restricted to algorithmically producing an answer to a question.

**Observable Behavior:** A computing component is modeled in terms of its *observable behavior*, where later input values may depend on earlier output values and vice versa.

**Environments:** The world, or *environment* of the computation is part of the model, dynamically supplying the computational system with the inputs, and consuming the output values from the system.

**Concurrency:** Computation may be *concurrent*, where the computing agent computes in parallel with its environment, and with other agents in it.

The recognition that these characteristics are inherently outside the traditional (algorithmic) conceptualization of computation is the basis for this new paradigm for computing, built around the unifying concept of *interaction*.

### WORKSHOP GOALS

The claim that "interaction is more powerful than algorithms" is an open invitation to researchers to develop the tools and methods that can lend credence to this claim. Many models capturing different aspects of interaction have been introduced, including interaction automata and process algebras. It is now time for researchers involved in interactive systems to join their efforts and collaborate to develop a common framework that focuses on constructive models of computation that exploit interaction as a first-class concept. Accordingly, FInCo 2007 has the following goals:

- *Understand the fundamental issues underlying the interaction paradigm;*
- *Establish a common language- and domain-independent framework for a theory of interactive computation;*
- *Identify the interactive principles of effective and reliable engineering of software systems;*
- *Map out the design space of models of interaction, towards accomplishing above goals.*

### WORKSHOP PANEL: Interactive Models for Software Engineering

**Moderator:** *Peter Wegner*, Brown University, USA

Software & systems engineering of today is being affected by the growing importance of interaction. This panel considers the role of interaction in the theory and practice of computing, with a special focus on system design and development.

### CALL FOR PAPERS

We solicit papers addressing one or more of the above goals. Papers are due by Jan. 31, 2007, in PDF format (12-page limit, font size 11). Post-proceedings will be published by ENTCS; selected papers will be invited for journal publication.

### IMPORTANT DATES

**Submission:** Jan. 31, 2007  
**Notification:** Feb. 28, 2007  
**Workshop:** Mar. 31, 2007

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