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# Multitasking, Activity Management and Task Decomposition in the Atomic Age

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**Task decomposition**

One of the successes of crowdsourcing has been to develop effective techniques for decomposing tasks into small numbers of dissociated parts. Each of these independent task pieces can be assigned to workers for asynchronous completion.

This atomization has a number of benefits. It reduces risk of failure for workers and requesters. It gives workers and requesters more flexibility of what work gets done and when. And it allows for performance to be straightforwardly operationalized – ‘good’ and ‘bad’ can be distinguished algorithmically.

**Broader context of task execution**

In many ways task decomposition for the crowd is a logical continuation of the efforts made in cognitive science-inspired HCI. Approaches like GOMS have often struggled to accurately account for behavior. These failures often stemmed from models’ inability to account for the broader context of task execution and the intrinsic complexity of many day-to-day tasks.

As crowdsourcing is increasingly used for higher-value, more collaborative and less obviously atomizable tasks, there are a number of open questions about how people complete tasks and activities. What strategies to people have for managing tasks? How are they

scheduled and prioritized? What are their pain points? Do workers have an understanding of how their environments aid or hinder their work? At the workshop we would like to explore, refine and extend these questions with other researchers in the area.

### **Overview of current activity**

We are currently investigating task management and multitasking in distributed settings like crowds. One part of our work attempts to characterize crowdworkers' task management behavior. In particular we have focused on how multitasking might impact on performance and how the negative effects of such behavior can be mitigated. We have published on the frequency and duration of interruptions during online work [1], and investigated how delays during microtasks affect attentiveness [2].

The other part of our work has used crowds to facilitate investigations of fundamental questions about multitasking behavior and task management. We have found that the loss of experimental control inherent in online studies [4] makes crowds platforms ideal environments for running naturalistic experiments. In contrast to laboratory participants, crowdworkers have many competing tasks that all have concrete utility. This enables us to study multitasking behavior in a way that better reflects how people manage tasks in more lifelike scenarios than is possible with the 'toy' tasks and simulations commonly used in lab experiments [3].

Both of these research threads involve developing a solid understanding of task management in crowd settings. We'd like the opportunity to hear about what others have been doing in this area at the workshop.

### **Biographies**

**Sandy Gould** is a post-doctoral researcher at UCL. He studies how people manage tasks, multitask and deal with interruptions. He uses experimental and observational methods to investigate this behavior in laboratory and remote online environments.

**Anna Cox** is a Reader at UCL. Her research takes a scientific approach to investigating HCI, with a particular focus on immersion in gaming and how people search for information.

**Duncan Brumby** is a Senior Lecturer at UCL. His research takes a scientific approach to understand how people interact with interfaces elements and how devices are used in mobile settings.

### **References**

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