

EDITORIAL

New opportunities for services and human–computer interaction

Introduction

For many Services Research and Service Design are emerging, crossing and in some cases redefining disciplinary boundaries. The user, value and worth centred ethos of human–computer interaction (HCI) approaches, is making its way into service design approaches (Cottam and Leadbeater 2004, Parker and Heapy 2006, Boyle and Harris 2009, Bunt and Harris 2009) with the usual range of complements and challenges that occur when disciplines interact (e.g. Gulbrandsen and Dijk 2010, Wild 2010b). Recent years have seen a number of papers being published in HCI ‘venues’ (e.g. Kwon et al. 2007, van Dijk et al. 2007, Caratozzolo et al. 2008, Koivumaki et al. 2008, Newman and Doherty 2008, van Dijk 2008, Medina et al. 2010, Wild 2010a), alongside workshops exploring the intersection of HCI and Services (Wild 2008, 2009). Many approaches to Service design borrow, overlap or complement HCI’s applied focus and academic rigour. For example Parker and Heapy’s use of prototypes, personas and measurement of the Service experience. Another of HCI’s strengths is its strong emphasis on creative and systematic conceptual design. This can inform new ways of approaching Service design, which can enhance the focus that Service Marketing and Operations communities have taken to Services (see Seddon 1992, Berry and Lampo 2000, Seddon et al. 2009, Wild 2010a).

Service has also emerged as a metaphor for desktop, web-based, pervasive and ubiquitous software applications. Researchers and practitioners often talk of services instead of applications. Service-oriented architectures (SOA) receive continued attention in computing, but research is often divorced from HCI issues (Penta et al. 2005, Kounkou et al. 2008). SOA has emerged alongside the Software as a Service Software (SaaS) concept, which based on a rental rather than purchase metaphor for software artefacts. The SOA and SaaS communities have largely focussed on exploring architectures, and there often is little link to HCI concerns, although research within several European funded projects has started to address this issue.

Overall, in developing the call for papers for this special issue, we felt the time was ripe to explore the

new opportunities at the intersection between HCI and Services research.

Overview of the special issue papers

In the CFP for this special issue we argued that HCI has much to offer service development: from the foundation principles espoused by Gould and Lewis (1985), via approaches that provide sophisticated analysis of tasks/activities; through to theoretical and practical tooling that allows us to consider experience, emotion, etc. Given HCI’s diversity, the papers presented within this special issue reflect a range of different concerns. We see:

- Different traditions being drawn upon such as HCI, information systems, requirements, system and software engineering.
- Different service domains being used in studies (from Mobile services, to healthcare via energy and international relocation).
- Reuse and application of commonly recurring representations such as ConcurTaskTrees and UML.
- Application of commonly used HCI approaches such as personas, stories, paper and interactive prototyping, interaction, task and user analysis, etc.
- New insights into the challenges service development offers, both generically and specific to HCI.
- Concern with HCI input to service development during a range of lifecycle phases, such as analysis, design, prototyping and evaluation.

We provide an overview of each of the eight special issue papers in turn.

Dimitrios C. Karaiskos, Dimitris A. Drossos, Alexandros S. Tsiaousis, George M. Giaglis and Konstantinos G. Fouskas: Affective and social determinants of mobile data services adoption

Within this paper, the author’s concern is with mobile data services (MDS), which are defined as all non-voice value-adding services. The authors start from the view

that models in the Technology Acceptance Model (TAM) tradition have focussed on organisational rather than individual needs. To refocus on individual needs they draw on the work Henry Triandis, which considers affect and context, alongside with cognitive and social beliefs. A series of hypothesis are derived from Triandis' work in relation to mobile data services. These were investigated using web-based questionnaire ($N = 219$) of Greek MDS users, with an overall interest in exploring the role of *intention* and its relationship with *behaviour*. Their results demonstrate that the intention to use MDS can be predicted by three factors: *perceived usefulness*, *perceived enjoyment* and *social factors*. The authors acknowledge a number of limitations in their own work, including a reliance on one cultural group, and a potential self-selecting bias in the survey. This however, provides future opportunities for further studies of, and with, their questionnaire. The paper provides comparison and divergence from studies in the TAM tradition, alongside providing support for the utility of Triandis' work in relation to MDS, and possibly more 'traditional' information systems.

Anu Kankainen, Kirsikka Vaajakallio, Vesa Kantola and Tuuli Mattelmäki: Storytelling Group – a co-design method for service design

Kankainen et al. introduce the 'Storytelling Group' as a collaborative method for the development of services. The approach builds on the HCI tradition of using personas, scenarios and narratives in the development of software artefacts. As a method, Storytelling Group tackles several aspects of service complexity, namely the need to focus on the customer's journey; the longer-term perspective of services; the need for service users to talk about aspects of their service ecosystem; and the social and interactional aspects of service provisions and enactment. Storytelling Group has been applied in three different cases studies, and the authors provide an outline of the process of application and insights into how the approach differs from related approaches that have been used in service development (e.g. focus groups).

Fabio Paternò, Carmen Santoro and Lucio Davide Spano: The role of HCI models in service front end development

Two recurring themes within HCI are the provision of software support for the specification and generation of software artefacts, and the modelling of human/computer tasks and activities. Within this paper, the author is concerned with how existing approaches to task description are applicable to the specification of

service oriented architectures (SOAs). The paper demonstrates the utility of recurring concepts, and representations such as task models and abstract/concrete user interface models in the development of interactive service-based software.

Ohad Inbar and Noam Tractinsky: Lowering the line of visibility: Incidental users in service encounters

Inbar and Tractinsky's concern is with a characterisation of service stakeholders they term 'Incidental Users.' These are defined as '*a person who, usually in the context of receiving service, is involved in the exchange of information with a computerised system, and is not the principal user of the system*', and are argued to be pervasive in service systems, but also widely ignored. For example, where medical staff use a device to work on a patient, the patient is the service recipient, but an incidental user of the device. Within the paper the authors sketch a framework which considers this aspect of an incidental user. The framework embraces considerations of trust and effectiveness, and develops from these concerns a series of propositions concerning increasing trust; it is from these ideas that transparencies are derived.

Nalini P. Kotamraju and Thea M. van der Geest: The tension between user-centred design and e-government services

With the increasing provision of e-government and electronic 'State' services for citizens and businesses the concern of this paper is with the HCI implications of these papers and the tensions between UCD practices and the legal requirements of e-government.

Kotamraju and van der Geest's study brings our attention to many issues, two are most pertinent. Firstly, that users and governments hold a contradictory vision of the tasks, going against the assumption that most services are collaborative and complementary in nature. Secondly, that governments must design for all, and that government and service users differ in their commitments to legal rules. In effect they ask how 'deep' should user centred design go? Indeed, How deep *can* it go if it implies the repeal of laws and regulations that are deemed 'unfriendly'.

Gokul Bhandari and Anne Snowdon: Design of a patient-centric, service-oriented healthcare navigation system for a Local Health Integration Network

Health care services are the focal domain of this paper. The authors outline an approach to the development of public healthcare services across a plethora of

provision agencies in Canada. The approach combines ontology modelling concepts, with a user centred approach to provide a system level view of the services available. It is argued that this approach goes some way to refining current thinking on service oriented provision, and that whilst becoming dominant in both technical and management discourse it is still lacking in applied methods and a genuine user centred ethos.

Djilali Idoughi, Ahmed Seffah and Christophe Kolski: Adding user experience into the interactive service design loop: A persona-based approach

Within this paper, the authors' concern is to use a persona-based approach to enrich the development of software-based services. Noting that whilst personas are popular, their use has undergone little formal study, and in turn, most approaches to Software service development have neglected HCI issues. The paper presents a 'framework' for persona-based development that includes classic HCI and IS activities such as Business Analysis, User and Task Analysis, alongside service identification, service and UI specification, and interactive service mock-up and prototyping. This framework is applied in a case study of the development agro-alimentary e-services.

Overall, the paper is an increment towards understanding existing methods in a new context, service-based software, and helps to mitigate the dominance or technical or business-based perspectives in interactive service development approaches.

Cecilia Katzef, Åsa Nyblom, Sara Tunheden and Carin Torstensson: User centred design and evaluation of energy coach – an interactive energy service for households

Going beyond the theoretical work that has been done on understanding potential relationships between HCI and Services research (e.g. Holmlid 2009) Katzef et al. report on empirical experiences using HCI approaches in the design of services. Within this paper, the design focus is not the artefact or site per se, but the service that they provide to the families that use them. Drawing on common HCI approaches such as paper prototypes, collaborative workshops, etc. The authors bring our attention to the long-term nature of the services and the implications this has for evaluation practices.

Summary

Overall, this collection embraces its exploration of new opportunities and presents a range of old

and new approaches, differing domains and new insights.

Reviewer acknowledgements

The following reviewers took on the task of evaluating the submitted papers for their respective understanding of Services, HCI and appropriate methodological and/or theoretical rigour.

| Reviewer | Current affiliation |
|-----------------------|---|
| Prof Gilbert Cockton | Northumbria University, UK |
| Dr Chandra Harrison | Freelance User Researcher, UK |
| Dr Stefan Holmlid | Linköpings University, Sweden |
| Ohad Inbar | Ben-Gurion University, Israel |
| Lucy Kimbell | The Young Foundation, London, UK |
| John Knight | Independent Consult London, UK |
| Dr Linda Little | Northumbria University, UK |
| Dr Paul Maglio | IBM, USA |
| Dr Shailey Minocha | The Open University, UK |
| Prof Fabio Paternò | Istituto di Scienza e Tecnologie dell'Informazione, Italy |
| Dr Emma Pickering | Independent Consult London, UK |
| Dr Claudio Pinhanez | IBM, Brazil |
| Dr Virpi Roto | Aalto University, Finland |
| Dr Jonathan San Diego | King's College London, UK |
| Dr Simone Stumpf | City University London, UK |
| Prof Noam Tractinsky | Ben-Gurion University, Israel |
| Dr Katerina Tzanidou | Google, London, UK |
| Dr Chui Yin Wong | Multimedia University, Malaysia |

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Peter J. Wild*

Leigh, Lancashire, UK

*Email: peter.j.wild@gmail.com

Geke van Dijk

STBY London/Amsterdam,

Studio 25, London Fruit and

Wool Exchange, Brushfield Street,

London, E1 6AA, UK

Neil Maiden

Centre for HCI Design, School of Informatics,

City University London, Northampton Square,

College Building, London,

EC1V 0HB, UK

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