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How to cite:

Mancini, Clara; Lawson, Shaun; van der Linden, Janet; Häkkinen, Jonna; Noz, Frank and Juhlin, Oskar (2012). Animal-computer interaction SIG. In: ACM SIGCHI Conference on Human Factors in Computing Systems, 5-10 May 2012, Austin, Texas.

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Version: Version of Record

Link(s) to article on publisher's website:

<http://dx.doi.org/doi:10.1145/2212776.2212431>

<http://dl.acm.org/citation.cfm?id=2212776.2212431&coll=DL&dl=ACM>

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Animal-Computer Interaction SIG

Clara Mancini

The Open University
Milton Keynes
MK7 6AA, UK
c.mancini@open.ac.uk

Shaun Lawson

University of Lincoln
Lincoln
LN6 7TS, UK
slawson@lincoln.ac.uk

Janet van der Linden

The Open University
Milton Keynes
MK7 6AA, UK
j.vanderlinden@open.ac.uk

Jonna Häkkinen

Nokia Research Center
90230 Oulu
Finland
Jonna.Haikka@nokia.com

Frank Noz

FrankNoz.com
San Francisco
CA, USA
frank.noz@gmail.com

Chadwick Wingrave

University of Central Florida
Orlando
FL, USA 32816-2362
cwingrav@gmail.com

Oskar Juhlin

Stockholm University
10691 Stockholm
Sweden
oskarj@tii.se

**Abstract**

User-computer interaction research is demonstrating growing interest in the relation between animals and technology (e.g., computer-mediated interspecies interactions and animal-computer interfaces). However, as a research area, this topic is still underexplored and fragmented, and researchers lack opportunities to exchange ideas, identify resources, form collaborations and co-operatively develop a coherent research agenda. The Animal-Computer Interaction (ACI) SIG meeting aims to provide such an opportunity, promoting the development of ACI as a distinct area of research which is relevant to both animals and humans.

Keywords

Animal-computer interaction; human-animal interaction; nonhuman and interspecies interfaces.

ACM Classification Keywords

H.5.2. [Information interfaces and presentation]: User Interfaces---user-centred design.

General Terms

Design, human (and nonhuman) factors.

Introduction: why an ACI SIG?

Animals have been involved in machine interactions for a long time (e.g., cows using robots to milk themselves or dogs playing computer games with their human

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CHI'12, May 5-10, 2012, Austin, Texas, USA.
ACM 978-1-4503-1016-1/12/05.

companions). However, the study of such interactions, in relation to both animals and humans, is yet to enter mainstream user-computer interaction research. In recent years, HCI researchers have started taking an interest in the relation between animals and computing technology, for example, in terms of interspecies relations or animal-computer interfaces. However, for those of us who want to develop or study technology for animal (as well as human) use there is still little support. Of course, we can draw from the HCI arsenal of theoretical and methodological tools. But in order to do that most effectively, we need a space where we can focus on animal-computer interactions themselves, looking at animals as legitimate technology users and co-participants in technological interactions, in the context of both human-animal relations and animal engagement with technology in different settings.

The Animal-Computer Interaction (ACI) SIG Meeting aims to provide a venue for interested researchers to come together, share experiences and ideas, and discuss how an area that is still taking shape might develop, what challenges it might face, how these might be met, and where the necessary resources, future forums and support might be found.

Background and community

Important recent research directly related to Animal-Computer Interaction has focussed upon companion animals and has mainly sought to develop interactive technology that aims to foster human-animal interaction while benefitting both sides of the relationship. Some of this technology aims to promote interspecies awareness (see Mankoff *et al.*'s interspecies social awareness interfaces [6]) or support remote connectedness between humans and animals

(see Lee *et al.*'s mixed reality system for chicken-human tactile interaction [4], or Hu *et al.*'s remotely controlled interactive physical dog games [3]). Other technology is designed to entertain both humans and animals (see Young *et al.*'s distributed tangible interfaces for pets and owners [12], or Noz and An's interactive cat-human iPad games [8]) while serving as a training aid too (see Wingrave *et al.*'s canine amusement and training applications [11]). Other work has closely examined the effects of interactive technology on interspecies relationship management and social dynamics (see Weilenmann and Juhlin's research on dog tracking in hunting [10], or Paldanius *et al.*'s work on pet monitoring for daily care [9]). Finally, work that has taken a broader view on the research area has either reviewed existing technology (see McGrath's review of species-specific interfaces [7]) or proposed a general approach to and research agenda (see Mancini's animal-computer interaction manifesto [5]).

How does this work contribute to the development of a coherent and broader research agenda encompassing different interests to do with technology and nonhuman species co-habiting human society? If so, how might such a research area be articulated? What methods and approaches could ACI employ most productively? What should be the core features of sound ACI research? What initiatives and collaborations could support the development of ACI as a research community?

Discussion topics

Following an introduction on the (current and future) scope of ACI in relation to HCI, the ACI SIG Meeting will tackle 3 discussion topics:

Topic 1: ACI requirements, design and evaluation: Which HCI methods and models can be productively used in ACI? Which can be adapted and how? **Aim:** Compile a provisional list that ACI researchers and practitioners can refer to, including useful sources.

Topic 2: Composition of ACI teams: What expertise is needed for ACI research? Should animal psychologists or behaviorists be included as partners or can we develop appropriate expertise from within the HCI community? **Aim:** Compile an initial list of resources, including organizations, experts and publications.

Topic 3: Developing the ACI community: What future activities, groups and initiatives would support the development of ACI as a research community? What are the immediate steps when we leave this SIG meeting? **Aim:** Explore possibilities and deliberate, by vote, on at least one activity for immediate action following the meeting.

Activities

Before the meeting

We will publicize the meeting via the existing ACI blog [1], a dedicated Facebook page [2] and various mailing lists (e.g., CHI-Announcements) and social media (e.g. Twitter hashtag #chi2012). We will also produce ACI SIG postcards for distribution at CHI prior to the meeting. These materials will indicate the discussion topics and questions, so attendees can come prepared.

During the meeting

Firstly the organizers will introduce the ACI topic as represented by past and envisaged in future research (10mins) and attendees will be asked to share why they are interested in ACI (5 mins). Topics will then be discussed (15 mins per topic) with the attendees'

participation; we will map the discussion on a big screen to help participants stay focussed; we will also film the entire session. The organizers will then wrap up the meeting highlighting the next steps (10 mins). Given the number and breadth of topics, the organizers will keep interventions short and to the point to ensure that the discussion remains on schedule at all times. The discussion focus will be on pragmatically identifying useful sources, resources, criteria and reference points to support individual researchers as well as the development of an ACI community.

After the meeting

We will publish the lists, maps and video produced during the meeting on the ACI blog and Facebook page. We will also publicise the outcome and materials of the meeting via the same mailing lists and social media we used to publicise the meeting itself. We will also use the ACI blog and Facebook page to co-ordinate the organization of the activity chosen under Topic 3. We will co-author a short report, which we will submit for publication to ACM Interactions.

Attendees

We expect that attendees will include a range of HCI researchers and practitioners with an interest and expertise in different aspects of the technology development process, including requirements, design and evaluation. We expect them to have a personal or professional interest in the interaction between animals and technology. They might have already carried out ACI-related work, they might be exploring the possibility of venturing in this new area of research, or they might simply be curious to find out more – we believe the topic has substantial appeal to those who may not have considered working in the area before.

Organizers

Clara is Research Fellow at the Open University's Computing Department. She authored an Animal-Computer Interaction Manifesto and collaborates with animal scientists, technologists and practitioners to develop a comprehensive ACI research agenda. Shaun is Professor of Social Computing at the University of Lincoln. He is interested in the boundaries between interaction design, social computing, animal behavior and human-animal interactions. Janet is Senior Lecturer and heads the Pervasive Interaction Lab at the Open University's Computing Department. With a focus on wearable sensor and haptic technology, she is interested in the social interaction between humans, animals and robotics in farming. Jonna is User Experience Research Leader at Nokia Research Center. Her research interests include novel concepts for mobile and ubiquitous interaction and their usability, also in relation to humans and animals. Frank is a design practitioner, interested in developing technology enjoyed by both human and nonhuman users. His recent work, CatCatRevolution, explores how pets can be included in digital gaming experiences. Chadwick is a Postdoctoral Researcher at the Interactive Systems and User Experience Lab, University of Central Florida. He is interested in developing cross-species video games, such as CAT, to improve the canine-human bond. Oskar is Professor at the Department of Computing and Systems, Stockholm University, and director of Mobile Life VinnExcellence Centre. He is interested in technology design and sociology, and his work on human-animal interaction received a SIGCHI Honourable Mention at CHI2011.

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