Where HCI meets ACI

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ABSTRACT

This one day workshop examines the interactions and the space between HCI (Human Computer Interaction) and ACI (Animal Computer Interaction) focusing on the transferability of methods and ideas between the two fields. The workshop will begin with short presentations followed by plenary discussions. The aim is to strengthen connected thinking whilst highlighting the exchangeable connecting methods from both ACI and HCI and their subfields including Child Computer Interaction (CCI) and Human Robot Interaction (HRI), discussing what these fields learn from each other with their similarities and differences mapped. The output of this workshop will be an initial mapping of the ACI and HCI field's interchange of methods and learning transferability as well as an advanced understanding of how the two fields are useful to each other.

Author Keywords

Animal Computer Interaction; theory; methods; Human Computer Interaction.

ACM Classification Keywords

H.1.2 Information systems; User/Machine systems.

ANIMAL COMPUTER INTERACTION

Animal Computer Interaction (ACI) is the study of animals using, and being involved with, technology. This technology can be used for a multitude of reasons for example monitoring animals, understanding animals' behavior, increasing animal welfare, creating playful interactions and exploring human-animal interaction. ACI as a research area has been slowly growing with special interest groups at CHI [4], and with two International Congresses [11]. ACI primarily, but not exclusively, consists of studying the interaction between animals and technology, developing user-centered technology, applying a user-centered approach to animal-design and making methods and frameworks both unique to ACI and also from related fields such as HCI.

Research in ACI is diversifying into specific subfields within ACI, such as, for example, the behavioral aspects of animal-technology [5] looks at the impact of interactive technology on animals, and studies of zoo technology open up the contextual design of ACI [1]. The alignment of ACI with Human Computer Interaction (HCI), in terms of methodologies has been documented [8] but not extensively studied. While ACI has borrowed methods from HCI, Child Computer Interaction (CCI) and Human Robot Interaction (HRI), there has yet to be a complementary process of feeding back methods from ACI to HCI.

The aim of this ACI workshop at NordiCHI'16 is to specifically consider what, as interaction designers, we can learn about humans from studying animals in order to better understand what ACI can offer HCI and to map out routes for such information exchange.

While ACI is often seen as a separate field from HCI, humans are innately animals[1]. Some ACI researchers even take the position that HCI is a subculture of ACI rather than ACI being a niche area. This position is weakened given that whilst HCI is well established and researched and whilst there has been almost 200 years of systematic animal related research, the investigation around how non-human animals use technology is relatively new. Thus ACI researchers typically explore methods from HCI to transfer across into ACI. Examples of these are personas [10],

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[1]   http://www.bbc.com/earth/story/20150706-humans-are-not-unique-or-special

mediated-interaction [9, 12], grounded-theory, participation models [3], image identification [6] and co-design [2].

In order for these HCI methods to suit non-human computer interaction the methods often need to be altered to fit their intended users' requirements. Alterations of HCI methods is common when interaction design is planned for 'extreme' human users. One example is the transfer of HCI methods to Child Computer Interaction (CCI) where the end-user is no longer adult but a child [7]. When methods are altered, new knowledge is created that others can use, and new methods are then developed that can be used with other children. In ACI, whilst methods have been borrowed from HCI, to date methods have not been 'fed back'. In a symbiotic relationship, the two fields could each learn and specifically, humans could learn from non-human animals' interactions with technology so as to influence design. For example, one key challenge faced within ACI is to be able to gather end-user requirements from non-verbal users. Research in ACI here could help strengthen the requirements gathering with users in HCI who might also be non-verbal or who might have limited cognition. This would allow for better design frameworks to be built in HCI and ACI allowing for more inclusive technology.

WORKSHOP QUESTIONS
In light of the above, there are some interesting research questions and topics proposed for this workshop. These are:

- **Interchangeable Methods**: What key theories and methods from HCI and ACI are interchangeable? This question will identify what needs to be changed within methods to go from a human user to a non- animal user and vice versa.

- **Learning Transferability:** What can HCI learn from ACI and vice versa? This question will help map the overlying transference aptitude of the two fields.

- **Usefulness of HCI and ACI to one another:** Are there certain scenarios or methods that are especially useful in HCI from ACI or HCI to ACI.

The workshop has two main aims: firstly to help connect researchers in different fields together to link the two islands of knowledge, and secondly, to strengthen understanding of the methods used in HCI and ACI. As a result, this workshop will expand beyond ACI into analysis of methodology practice and application, into animal specific design and into the summary of joint knowledge. By creating bridges between these subject fields this can only reinforce and progress both HCI and ACI.

As ACI grows and its relationship with HCI continues to be assumed, some questions have arisen. This topic has so far only been discussed by either ACI or HCI related researchers. In the workshop, participants will:

- Map out the research space between and within ACI & HCI to identify gaps and current methods and theories employed.

- Create guidelines to help future researchers transfer HCI methods to ACI and then back, or to, HCI from ACI based on the findings found within the workshop on previous publications.

- Start a discussion about this interchange of disciplines to strengthen both fields by bringing in new perspectives to both ACI and HCI.

- Identify methods used in HCI that are also used in ACI and also seeing what methods are used in ACI exclusively.

This partnership between ACI and HCI, while benefitting HCI in general has specific interest to those in related fields who face similar problems to ACI researchers. These include academics in the field of researching systems for individuals with limited verbal or low cognitive function, and those working with children (CCI). Practitioners working with animals and those measuring the behavior of animals will also benefit from this workshop through the discussion around feedback methods. Scientists in Human Robot Interaction (HRI) will also be interested from the method crossover of perception and motion detection and models of cognition and mind.

Workshop Activities
The workshop will consist of short position papers around the topic of ACI and HCI, with work possibly from other areas who have a view of this. An invited talk will also be given on HCI and the relationship around animals, humans and machines with questions being raised around what is different from non-human animal to human design and what can we can learn about the shared knowledge in HCI and ACI iteratively. This will be followed by workshop activities that will explore the space under scrutiny.

Workshop Outputs
The output of the above workshop activities would be a poster and visual of how HCI and ACI can be mutually transformed with guidelines for the transferal of ACI to HCI. This comes from the workshop activities and will be presented on the workshops post-reflective summary blog. This would help inform both the ACI and HCI field.

A major overarching aim of this workshop is to put this work forward of those participants are interested into a framework bid for an EU proposal for research, to network and solidify the ACI & HCI partnership. The workshop will bring together researchers from across HCI but especially from areas like Human Robot Interaction (HRI) and Child Computer Interaction (CCI) who may also have a view on the transferability of methods and concepts to discuss methodological issues.

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