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Feeling SketCHI? The lasting appeal of the drawn image in HCI

Actions and figures participant sketches

A room of twenty-eight researchers from various career stages sit nervously in a brightly lit room, the tables in front of them are carefully strewn with assorted pencils, pens, paper and post-it notes. They are all here to see how they might improve their drawing skills and subsequently apply these skills to their own research.

“I can’t actually draw” – says one nervously – “is that ok?”

“Of course it is”, we chorus, “but actually, EVERYONE can draw”.

The myth that you either *Can*, or *Can't* is what prevents most of us from ever picking up a pencil after our schooldays and making no more effort than the odd doodle on a notebook during meetings or phone-calls. That kid you sat next too in art class who could draw people who *really looked like* people, that teacher who tutted and sighed when you presented your still life… forget them. It isn't important any more – this is about you, your ideas, and how you gain confidence in sketching.

Research suggests that drawing develops along the same pathways in the brain as language [COHN 2012], so we all have that capability as we learn and grow, but many of us simply stop when it is no longer a pleasurable, childlike activity, or becomes an optional subject at school. Re-engaging with sketching at a later age may require more effort, or a leap of faith, but it is no more out of reach to the average HCI researcher than learning a few words in a foreign language. *Ce n'est pas vrai?*

Breaking down the perceived barriers to starting again, or simply gaining confidence in sketching are the biggest challenges, and we focused on these as part of the *Applied Sketching in HCI* course launched this year at CHI [LEWIS 2018], a hybrid tutorial based on previous successful events by the authors, offering a full-service, hands-on overview of how sketching can be re/learned, utilised and analysed as part of the HCI research process.

The non-exhaustive list to utilising sketching in HCI spans the recording of information (visual note-taking, such as sketch-noting or visual facilitation for groups); journeys of self discovery (subjective sketching practice as a method of investigation); co-creation of sketches, telling user-stories, sketching as data collection, and sketching analysis or coding. In different combinations, sketching can thus support all stages of the research process – and it doesn't have to be perfect, neat, or photorealistic – *Ideas Not Art* is the mantra of the sketch-informed. In fact, it is the ephemeral, often lightweight nature of sketches that makes them ideal for suggestion, alternative interpretation and evolution.

We start our session with basic warm up tasks, the mark-making of lines, circles, swirls with simple, stark black pen (there are no mistakes here, so pencils and erasers are not necessary). We look at people, our users, how they move and express themselves and try to capture something of their humanity. We tell stories, give examples, sketch-a-long together: the atmosphere is inclusive, encouraging and most of all, creative. We bring together a visual library of iconography relating to different disciplines within HCI, the post-it notes spanning metres and metres of the session room wall, suggesting different perspectives and styles. We break, return, continue with a masterclass in photo-tracing and scene composition. In one corner, the daughter of two participants joins in, drawing spectacular dragons with sparkling ferocity while her parents apply their newfound skills to storyboarding. We culminate our activities with a lively session of *HCI Improv* an audience participation activity where teams compete to create products, services and scenarios for randomly generated users, problems and contexts, before turning our attention to the task of sketch-analysis: how we code, analyse and generate requirements from sketched imagery.

By the end of the session, all attendees are sketching user experiences, scenarios, and hoping to take their skills back to centres of research and learning. We pick up the papers left behind, cheered by how little remains of the created works, thus confirming their value to the participants. However, our work does not begin, or end here.

Sketching at CHI

Sketching is an unsung hero of many parts of the academic research process, but could be seen as being the remit of the few, cherished practitioners who have the confidence to wield the pencil and paper in the public domain. However, sketching in HCI goes beyond traditional mark making, to an integral part of focussed research projects, aimed at elaborating upon this human activity in the age of the computer.

Some years ago, we came together by chance at Human Factors in Computing Systems (CHI), having been introduced over social media by mutual friends who saw our shared interest and

activity around sketching in research, and urged us to meet. Whilst presenting work on comics, creating sketch-noted documentation of workshops, and attending sessions, we put together the bones of a plan to bring together those already engaged in sketching research to further elucidate this area as an emergent field. Our first workshop at Designing Interactive Systems (DIS) led to the creation of the *Sketching in HCI* network, bringing together researchers from areas as diverse as gamification, jewellery design, shape-changing interfaces and infovis; whilst an entry level tutorial we ran at NordiCHI proved there is an burgeoning interest in learning how to use sketching in research by a wider body of novices.

For the past 5 years, CHI has hosted courses in sketching, sometimes more than one, and in the meantime, the rise of visual facilitation or documentation in the workshop setting and for the recording of conferences has become a popular method for engagement and dissemination of proceedings. Concern for sketching practice in HCI is also not limited to special interest groups and courses. A large number of researchers – either formally or informally – use sketching in various skeins of research. This was evident in a number of demos and presentations at the CHI conference in Montreal this year. This interest is also not limited to process and presentation: for example, trying to breach the divide between digital and paper-based drawing has long been a focus of those who seek to unlock the mystery of why we appear to prefer visual thinking *offline,* or how we might merge AI and the drawn image. Others seek to harness the power of the stylus and human mind in novel tools and systems designed to enhance user experiences, such as this year's *DataInk* project [XIA 2018].

So sketching can be a valuable part of all stages of HCI research, but we are perhaps most familiar with it as part of the ideation process, forming links in the mind and creating novel forms from the ether. These insights do not have to be at the hands of the researcher either, the same encouragement can be used to elicit input from study participants for subsequent analysis or development. Sketching especially comes into its own when we examine *things that do not yet exist* – the novel interfaces of the future, or perhaps the scenarios relating to products that are in the early stages development [STURDEE 2018]. All made objects were represented by thoughtful imagery at some point, and by putting the power of visualisation into the hands of as many researchers and participants as possible, we expand the potential of our field exponentially.

Curiosity, as well as the desire to understand and promote sketching in HCI, therefore drove us to document incidences and uses of sketching in all forms at CHI, including our own contributions, and we collected what we found using the *#CHI2018* and *#SketCHI* hashtags together on social media platform *Twitter*, as well as encouraging others to do so. This record remains in the public sphere and provides a visual (and sketched) narrative of the conference relating to the human-drawn image.

Sketch and the Lizard King – How we learned to stop worrying and love to draw

As part of the drive to encourage interest in sketching, and to take advantage of the opportunity to present work in novel ways, we chose to bring sketching to our *Alt.CHI* paper session, which was already hosting group chanting, a live painting demonstration and fifteen minutes of silence. *Alt.CHI* is a daring collection of challenges, provocations and explorations which live at the fringes of HCI, and it therefore presents a unique opportunity to explicitly disrupt the status-quo, whilst presenting highly original works.

Under the umbrella of the newly realised *#SketchCHI*, we sought to actively engage the audience to take part in a sketching exercise, by creating a cyclical presentation-cum-exhibition of discourse and imagery. *Sketch and the Lizard King: Supporting Image Inclusion in HCI Publishing* [STURDEE 2018], is a comic-based analysis of image use in HCI and suggests leniency in page length or format when publishing work that would benefit from increased visuals. It culminates in a call-to-arms for CHI to consider changes to how it presents research.

By enabling the audience (supplying pens, pencils and paper) and presenting the talk entirely using a live Twitter feed, we solicited responsive sketches, examining and celebrating the drawn images as they arrived amidst the predetermined material. Those who did not use the platform we also able to submit their images to the authors after the session, and these contributions were

added to the feed afterwards. This unusual methodology not only exemplified audience participation, but ensured that the forum could continue beyond the allocated room and time. By removing the perceived barriers to sketching (lack of materials, encouragement or confidence) we found ourselves in a room full of nascent artists and practitioners, beginning discussions that were to span the conference and beyond.

Later, during the scheduled Town Hall meeting, we were driven to ask the question: Will CHI consider a pictorial or highly visual format in future conferences? The positive murmurings of the attending crowd suggest there is the potential for uptake in this area, further expanding the archival formats available to researchers at CHI.

The Sketching SIG – Adventures en Palais De Congres

SIG image, by M. Sturdee

To engage those who already had an interest in sketching prior to the conference, we hosted a hands-on special interest group for sketching at CHI [LEWIS 2018], where our discussions took an active turn as we roamed the venue, taking in the scenery and inhabitants, before committing them to paper. A diverse mix of attendees ensured that the scope of the session was broad, and the imagery illuminating: sketching on location became a conversation opener, a masterclass, and a social event, lasting well into the break before the lure of hot pudding, custard and cream broke up our close-knit group.

We began in the main hall and front steps: striking architecture and curious pigeons found a home on the attendees sketchpads and papers as we discussed the significance, potential benefits, and pitfalls of sketching in HCI. We moved through the venue, asking how we can increase the visibility and uptake of sketching within the HCI curricula, to engage with students who view even physical computing as a technical, coded skill set without room for creative

expression. Outside, in the public spaces surrounding the Palais, we brought shop fronts, cafes and pedestrians into the embrace of the sketched image, whilst considering what the future of sketching in HCI might bring.

To engage with our students emerged as perhaps the most challenging aspect of sketching as a tool for HCI, and the most pertinent – enabling and encouraging our younger community members will ensure a diverse skill set and interest which can be sustained throughout lengthy academic careers. Sharing best practice in teaching and workshop facilitation also proved to be a popular topic, and brought the group together regardless of their area of interest within HCI as a whole.

The success of the SIG, and how much was realised in the short 90 minutes we were allocated propels us to host similar events at the forthcoming CHI in Glasgow, and other sponsored ACM conference. By allowing practitioners and researchers to come together in this manner, collaborations and contacts are made, and the prospect of sketching in HCI is strengthened.

Sketching the Future

Sketching can be seen as a particularly *human* activity (if we ignore the odd elephant that takes up painting as a hobby), and from our earliest years as homo sapiens we made marks on cave walls to depict the world around us. The world is forever changing, but this simple method of recording our surroundings has lasting appeal. The tools available to us may also be different, such as the advent of the tablet computer and digital stylus, but we currently remain the perpetrators of this form of output – although could this be about to change?

Paul the Robot has been built to draw portraits of people as a naïve artist and observer [TRESSET 2013], and advances in neural networks are training computers to recognise the styles of famous painters and re-use them in the application of creating novel artworks in the same vein. The next steps for sketching in HCI could see machines as the foci of creative and expressive practice, we might compare the sketches of a machine to those of a child learning to draw, and attribute some form of humanity to the resulting images. Interactive systems can also teach us how to better wield a pen, gently shifting our lines to conform to aesthetic ideals suggested by computational analysis of thousands of similar images, or train our muscles to recognise their relationship to the mark on the page using playful interfaces [WILLIFORD 2017]. Perhaps the sketch of the future embraces other formats of the same descriptor – pieces of code, movement, algorithms.

The evolution of sketching research does not negate its roots, but offers further avenues of enquiry and widens its reach. Sketching is one technique that transcends disciplines, sub-disciplines and social groups, and this potential to bring together groups within HCI should not be overlooked. By creating working groups aimed at promoting sketching as discourse, analysis and research practice, we can collaborate on developing sketching in practice, and reap the rewards of an engaged, expressive and interactive researcher base.

Conclusion

Not only do we wish to elevate sketching practice and methodologies as a serious focus for research, but we call for CHI to embrace and promote all visual forms of documentation – such as the *Pictorial* – a recent development in the archival format used by *Designing Interactive Systems* and *Creativity and Cognition*. To actively engage with imagery in relation to technology – and not limit it to the simple outputs of machinery and computers – furthers the interdisciplinary embrace of CHI, and therefore that of the ACM. Blending diverse practices and subject matter breaks us out of our comfort zones, and can lead to discovery and purposeful reflection – and it could all start with a sketch.

Sketching as we know it may evolve during the age of the computer, but it is here to stay.

Join the Sketching in HCI Slack Group: google link

To see the SketCHI narrative from CHI2018, search #SketCHI and #CHI2018 together on Twitter.com

Visual Icon library from Applied Sketching in HCI

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