Take a line for a walk! A Hands-on Introductory Course on Sketching in HCI

Makayla Lewis
Kingston University
London, UK
M.M.Lewis@kingston.ac.uk

Miriam Sturdee
Lancaster University
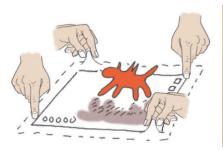Lancaster, UK
m.sturdee@lancaster.ac.uk

Figure 1: Figure 1: from left: (1) Hand gesture (interactions) sketch by Miriam Sturdee, 2016. (2) Live sketching at Japan House Tokyo Exhibition by Makayla Lewis, 2021. (3) Online sketching in HCI course at CHI 2021 using Zoom conference and Miro (virtual whiteboard. (4) Sample sketching techniques (people) covered in the CHI 2019 sketching in HCI course

ABSTRACT

Sketching is a universal activity that first appears when we play as children, but later, it is often overlooked as a useful skill in adult work – yet it can bring multiple benefits to research and practice. Specifically, our field of Human-Computer Interaction (HCI) embraces interdisciplinary practices, and amongst those, sketching has proven to be a valuable addition to the skill set of researchers, practitioners, and educators in both academia and industry. Many individuals lack the confidence to take up pen and paper after years of non-practice, but it is possible to re-learn these lost skills, improve on them, and apply them in practical ways to all areas of work and research. This course offers a journey in sketching, from scribbles and playful interpretations to hands-on and theoretical information inherent in sketching practice. Attending individuals will learn techniques and applied methods for utilizing sketching within the context of HCI, guided by experienced instructors.

CCS CONCEPTS

• **Human-centered computing → Human computer interaction (HCI)**.

KEYWORDS

sketching, drawing, comics, storyboards, UX

1 BACKGROUND

Sketching is an ancient practice: from cave painting, picture-books to comics, we have explored the world with our visual senses [7]. Now as technology develops, we are discovering ways in which the traditional visual arts can co-exist alongside the complexity of computing. Within Human Computer Interaction, this co-existence can be embodied in ideation, design spaces, storytelling, and impact and much more – such as a section of code [3], rapid prototyping [8], algorithmic recognition [13], a digital representation [12] and so forth. To learn to sketch gives an educator, researcher, or industry practitioner a toolkit of skills, images and creativity that can support and influence insightful work. We learn to sketch much as we learn to speak, so this is a skill that can be learned at any stage in life. The purpose of this course is to take the learner from basic, hands-on sketching to practical research contexts, with opportunities for practice, feedback, and creative thinking. Attendees will leave with the confidence to begin to employ sketching in their own HCI research and practice.

2 COURSE SUMMARY

Duration of course: 2x 75 minutes sessions **Audience size:** 35, although, instructors have taught up to 50 participants with an option to repeat the course if required. **Learning Outcomes and Benefits** Sketching is often overlooked in many disciplines, or referred

to as a 'soft' skill, however, it can support HCI researchers and practitioners to ideate, collaborate, document, and explore and discover complex themes and spaces. This hands-on introductory course intends to celebrate and promote the diverse role of sketching to all practitioners, but also to generate discussion – encouraging participants to adopt sketching in their everyday education, research, and practice. **Intended Audience(s)** The content of this course is suitable for academics (teachers and researchers), industry leaders and practitioners, students, and early career researchers that have an interest in learning and or improving their sketching skills. Novices, experts, and those with an interest are welcome to attend. **Prerequisites** No prerequisites, although, attendees should have an interest sketching, but prior knowledge regarding its HCI applications is not required. **Course Delivery** In-person. Although, please note that this course has been designed and previously delivered in a way that would allow for online: CHI 2021 sketching in HCI course by authors [18] (Figures 1 & 2). **Promotion & Website** Authors organizers intend to recruit attendees through relevant mailing lists, and by reaching out to HCI researchers that have previously shown an interest in sketching in HCI. To encourage international community building, social media will be used e.g., Twitter and Instagram using hashtags #HCI #Sketching #CHI2022 as well as the course hashtag #SketCHI. A course website is available at: www.sketchhci.wordpress.com/

Content & Practical Work Course participants will be guided through selected sketching techniques and strategies (Figures 1 & 2). These techniques will be based on well-established sketching, interaction design and computer science material, e.g. [1, 9, 17, 19], but will also include additional techniques and examples. The course is structured as follows:

(1) **Warm-up 'The Humble Line':** *Activity #1:* Participants will be asked to embrace their 'younger selves' by mark-making (scribbling), the activity purpose is to let go of perfection.

(2) **Icebreaker 'Participant Portraits':** *Activity #2:* Participants will be asked to work in pairs to draw each other. They will then be asked to give their drawing to the person and ask: what is your name? where do you work and what is your role? Why have you joined today's Sketching in HCI course?

(3) **Exemplar Sketch Gallery:** Exemplar presentation and discussion outlining visual thinking, sketching, and sketchnotes with examples from HCI, UX, interaction design and computer science followed by a question and answer to establish participants key motivations and goals.

(4) **Visual Language:** Participants will sketch-along with the instructors, following a series of best practice examples that will be live drawn and digitally projected for immediacy: *Activity #3:* Shapes, connectors, & separators. *Activity #4:* People, gestures, and actions + Show & Tell. *Activity #5:* Scenes including buildings, place (indoors/ outdoors) + Show & Tell. *Activity #6:* Icon dictionary, participants will work together to rapidly build a visual dictionary of objects and concepts present in HCI. *Activity #7:* Typography & hand lettering, participants will explore the role of annotation and notes in sketches by hand-lettering using instructors' examples

(worksheets) + Show & Tell. Followed by *Activity #8:* Sketchy audience suggestions, a rapid sketching session whereby participants ask the instructors to draw an action, screen, object, or concept not previously demonstrated. Followed by exemplar presentation and discussion outlining the role of color & shading (color theory) in sketching.

(5) **Applying Sketching in HCI Research & Practice:** Exemplar presentation and discussion outlining visual thinking and sketching from HCI, interaction design and computer science. *Activity #9:* Instructors and participants will produce a visual mind map exploring significance, benefits, and pitfalls of sketching in HCI and how participants may apply sketching into their everyday work and research practice.

(6) **Without Words:** *Activity #10:* Participants will be asked to sketch their research area or industry practice (e.g., a recent project) without the use of text or verbalization. Sketches will be placed in a 'sketch gallery', an easy to access wall or large table within the course room. Using digital post-it notes participants will be asked to identify the field of study and key insights of each sketch, each post-it will be stuck next to each sketch. The purpose of this activity is to get to know course peers and to provide constructive feedback on narrative depiction.

(7) **Visual Narratives:** Storyboards & comics exemplar presentation followed by *Activity #11:* An instructor led group discussion about the use of comics and scenarios in HCI e.g., data comics [1], storyboards [9, 26, 29] followed by best practice techniques for creating coherent and engaging comics and scenarios. *Activity #12:* Visual Economy, participants will be asked to draw a scenario/sequence in only 3 panels, then 1 panel. The purpose of this is for dissemination and publications where size/length is at a premium.

(8) **Accessibility of Sketches:** Presentation about accessibility of sketches, best practice and examples, e.g., use of screen readers and the need for text alternatives (alt text) www.w3.org/WAI/alt/, and how such measures also support search engine optimization, followed by *Activity #13:* Participants will be asked to return to their Activity #10 outputs and add alt text followed by show and tell with a neighbor ensuring constructive critique is given.

(9) **Digital sketching techniques:** Exemplar gallery followed by best practice presentation about incorporating digital sketching hardware and software in sketching in HCI research and practice.

(10) **Design Fiction & Speculative Scenarios:** Exemplar presentation followed by *Activity #14:* Group brainstorming session to explore 'Applying sketching to your own research/practice?'.

(11) **Sketching with Participants:** Generation and analysis exemplar presentation followed by *Activity #15:* Instructor led group discussion about gathering and working with participant-generated sketches.

(12) **Remote sketching techniques:** Presentation and demonstration about sharing and carrying out remote sketching sessions with colleagues, team members and participants.
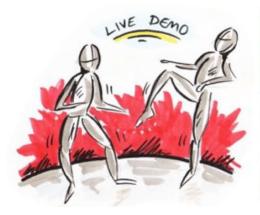
Figure 2: (left) Miriam Sturdee digitally sketching figure actions at CHI 2019 (middle) Makayla Lewis introducing participants to sketching storyboards at CHI 2019 (right) visual icon library wall at CHI 2019 [20]

The instructors will ensure feedback is given to each participant throughout the course. Participants will also be provided with crib sheets and practice sheets and post course activities (further sketching practice): *Activity #16* Sketch Analysis, via course materials participants will be given sketches from existing published work and taken through the methodologies that can be used to generate meaningful data from these visuals. *Activity #17* Vignette, participants will be provided with a photography (with alt text) of a *Rory's Storycubes* roll and asked to create a one-page visual story *Activity #18* HCI improv, participants will be given prompts (fictional problem, user persona, technology availability and user need) to create a visual storyboard depicting a potential solution. Finally, participants will be invited to join our existing network, *Sketching in HCI* on Slack: a community engaging with sketching research and practice in HCI.

3   INSTRUCTOR BACKGROUND

Makayla Lewis is a lecturer in Computer Science (User Experience Design) at Kingston University London, researching and teaching human factors in business, cybersecurity, smart money, and AI. Makayla is an accomplished visual thinker and sketcher who organizes sketching events and courses and provides visuals for international companies and conferences such as ACM CHI & ISS. Selected/related publications: A Tactile Visual Library to Support User Experience Storytelling [16]; Are You Feeling it? The Use of Comic Strips to Encourage Empathy in Design [14]; I've Got Something to Say: The Use of Animation to Create a Meta-Story About Professional Identity [15]; Makayla Lewis on The Power of Sketchnoting in UX Design (an Adobe featured blog) [1]. **Miriam Sturdee** is a research fellow in Creative Practice in Computing at Lancaster University, specializing in investigating how sketching and the arts can support the design and development of novel technology. She also has an MFA in Visual Communication from Edinburgh College of Art and is an active illustrator, visual facilitator, and sketch artist. Her research has a particular focus on sketching

for shape-changing interfaces, cybersecurity [30], as well as design fiction and alternative publishing formats [25].

4   RESOURCES

Makayla Lewis [2] contains HCI sketchnotes, daily sketches and illustrations, and links to public engagement events e.g., Sketchnote Hangout, SketchnoteLDN, sketching crib sheets and worksheets. Miriam Sturdee co-authored our ACM Interactions magazine features [27, 28]. Other helpful resources include *Sketching User Experiences: The Workbook* [9], *The Back of the Napkin* [23], *Understanding Comics* [21], *The Sketchnote Handbook* [24], *Doodle Revolution* [6], *Visual Notetaking for Educators* [22], *The Cartoonist Workbook* [10], *Sketching as Design Thinking* [11], *Visual Thinking* [4], *Drawing Ideas* [2], and *My Icon Library* [5] which offer a beginner's perspective on different sketching approaches. Course notes will be produced before course and shared. Following the course, a visual summary 'sketchnotes', crib sheets, and further practice activities will be produced and shared.

5   COURSE ACCESSIBILITY STATEMENT

The course will be designed and delivered to be attended by as many people as possible. All text and verbal utterances will be clear, simple to understand and in English. All shared imagery will contain Alt Text with appropriate color contrast. All sketching demonstrations will be clearly verbalized, clear to follow, and at an appropriate speed. If the course is conducted online, remote attendees will have access to conference platform closed captioning. A virtual whiteboard platform will be set to allow for zoom in up to 300% without problems, keyboard navigation will also be supported. Opportunities for support, questions and comments will be present throughout the course regardless of in-person or online delivery.

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