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My Body, My Baby, and Everything Else: An Autoethnographic Illustrated Portfolio of Intra-Actions in Pregnancy and Childbirth

Mafalda Gamboa

Interaction Design, CSE, Chalmers University of Technology, University of Gothenburg

Gothenburg, Sweden

mafalda.gamboa@chalmers.se

ABSTRACT

I have been interested for many years in technology and its impact in everyday moments, I had not yet had the chance to critically and systematically find a coherent and self-contained experience to focus on. In March 2021, I bought a digital pregnancy test for the first time, and an autoethnographic journey started. It was the first year of my PhD and I was expecting my third child. In this pictorial, I offer an illustrated and annotated portfolio of my pregnancy, from test to birth, with an emphasis on the technology entangled in the stories. Framed by Agential Realism, I identify the agential cuts in the illustrations. I conclude with an appeal for annotated portfolios of intra-actions, and for other HCI researchers to share their own socio-technical assemblages around fertility, pregnancy, and childbirth. I use my account of this process as a step towards making the intra-actions in pregnancy and childbirth a matter of care for the TEI community.

Authors Keywords

illustration; pregnancy; autoethnography

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FIGURE 1

CSS Concepts

- Human-centered computing~Human computer interaction (HCI)

INTRODUCTION

In the spring of 2021, my youngest daughter was about to turn three and my oldest six. Our life was stable and becoming calmer. There was however, still a pandemic ongoing and we had left a difficult year behind juggling parenthood with changes of jobs and working from home. I was in the first year of my PhD, and found myself in a critical and reflective posture towards Human-Computer Interaction. I was deeply interested in developing and grounding my own stance as a designer. During this period I conducted more than one autoethnographic study in parallel, but none as important, embodied, tangible, and personal as the one recounted in this pictorial.

Childbearing and childbirth are often described as transitional [39], they are immensely changing moments in the life of any parent. There are many new feelings and identities created in this process, which can be spaced out throughout many years. For parents suffering from infertility or even miscarriages, this journey can be incredibly lengthy and psychologically taxing [9, 30].

Grounded on Agential Realism [3] as the theoretical framing of this paper, I present an illustrated autoethnographic account of my third pregnancy and birth in Sweden. In each section, I describe and illustrate narratives, annotating the agential cuts identified between myself; my unborn child; the technology; the environment; and other human and nonhuman agents. I appeal for more care in the research and design for these transitional periods. There is a need to critically consider the strongly technocratic views embedded into current intra-actions and how different socio-technical assemblages led towards positive entanglements, or on the contrary, to unfortunate disengagements with myself and others.

I conclude with an encouragement for sharing stories and illustrated depictions by other HCI researchers

and their own experience through annotated portfolios [18, 31] of intra-actions. I suggest this approach as a necessary method for 4th wave HCI [16] and a method for engaging with lived data as *diffraction-in-action* [42]. I pinpoint a set of non-prescriptive considerations for the TEI community when considering the design of technologies used during pregnancy and childbirth.

Auto-ethnography and Care

Autoethnography and autobiographical design are increasingly popular methods within HCI, as they allow for detailed first-person engagements between the designer and the design material. While autoethnography focuses on use of existing technologies, in autobiographical design [35] researchers both design artefacts and evaluate them through self-usage [e.g. 25, 29, 32, 47]. This does not mean second-person methods and approaches (such as for example interviews, ethnography, focus groups, and participatory design) should be neglected; autoethnography complements these with in-depth understanding on the border between expert knowledge and vulnerability as recognised within the social sciences and healthcare [14, 15]. To be a researcher is a position of privilege to give voice to others, but no story can be told as genuinely as our own. A collection of autoethnographic work within a field contributes a type of data and analysis which is not otherwise easily attained, but also not without its difficulties [45]. Desjardins and Ball [10] discuss the tensions in autobiographical work, describing sincerity, collaboration and authority, and inventiveness as recommendations for autobiographical design which I attempt to include in the present research.

Notably, Devendorf et al. develop *design memoirs* where stories from their personal struggles with motherhood are materialised into wearable artefacts. They believe the design memoirs “can lean against emergent solutionist narratives about technology in early motherhood that I find inadequate for addressing the totality of a complex felt experience.” [11]. Helms uses her own breast milk as the material for research and explorations in designing with, for, and among more-

than-human bodily materials [22]. She also reflects on the emotional cost of this research with her own bodily fluids framed by speculative ethics [23].

Research on the role of technologies in pregnancy and pregnancy loss can be found on topics such as online spaces [2, 8, 38], mobile apps [33, 37, 43], design toolkits [28], breast pumps [13], and general data management and privacy [34]. However, detailed accounts of both pregnancy and birth from a first-person perspective could not be found.

Ultimately, I attempt to represent and describe the phenomena surrounding my pregnancy and birth in order to not only expand the design space, but also to create care in others. As expressed by Puig de la Bellacasa, “*representing matters of fact and sociotechnical assemblages as matters of care is to intervene in the articulation of ethically and politically demanding issues. The point is not only to expose or reveal invisible labours of care, but also to generate care*”. I see this turn from matters of fact into matters of care as central to results of autoethnography but also as an important facet of performativity. While most researchers have had first-hand experiences with their matter of research, documenting those engagements and articulating them systematically is seldom described in research publications. Autoethnography serves two purposes here: to make explicit the matters of care the researcher wants to discuss, and to generate care in others. Essentially, “*to represent matters of care is an aesthetic and political move in the way of re-presenting things that problematizes the neglect of caring relationalities in an assemblage. Here the meaning of care for knowledge producers might involve a modest attempt to share the burden of stratified worlds. This commitment is the political significance of representing matters of care.*” [40]

Agential Realism and Intra-Action

Presented by Barad [3], agential realism relies on the principles of materiality and performativity. It introduces the notion of intra-action, which has

potential to change the entire sub-field of interaction design: “The neologism ‘intra-action’ *signifies the mutual constitution of entangled agencies*. That is, in contrast to the usual ‘interaction,’ which assumes that there are separate individual agencies that precede their interaction, the notion of intra-action recognizes that distinct agencies do not precede, but rather emerge through, their intra-action. It is important to note that the ‘distinct’ agencies are only distinct in a relational, not an absolute, sense, that is, *agencies are only distinct in relation to their mutual entanglement; they don’t exist as individual elements.*” [3, p.33] In short, this onto-epistem-ology is, as summarized by Frauenberger [16], “(a) the primary ontological unit of reality is not bounded entities, but phenomena that are reliably (and objectively) (re)produced by discursive material practices – something Barad calls *mattering*. (b) Things and people, as phenomena, mutually constitute each other through their intra-action, i.e., the boundaries between human and machines are not pre-determined, but enacted. This is what Barad calls different *agential cuts*. (c) What is possible to enact depends on the material configurations, i.e., reality is causally produced through a certain intra-action within human and material configurations. This allows her to trace *responsibility* within these configurations with rigour. Finally, (d) the world is in an *open-ended and continuous* process of *mattering*, i.e., these configurations constantly change and produce different agential cuts and phenomena.”

The configuration that led to this autoethnography is unique, an entangled state. With the account presented here, I mark differences and agential cuts through *mattering*. Sanches et al. [42] offer an excellent example of how engaging data diffractively can inform the messiness of design. In this pictorial, through the use of visual media, I support a “diffractive methodology” [3]

Personal, Societal, and Ethical Background

In 2021, there was a crisis in the labour and delivery units throughout Sweden. Midwives quit their jobs en-masse leading into issues coordinating shifts. Their cause was fair: they were overworked and conditions did not seem

to improve. I was due on the 22nd of December 2021 which put me at risk of being affected by shortage of staff during the holidays. I had been living in Sweden for 9 years, but my Portuguese upbringing still made me face the occasional culture shock. My family lives far, and although my parents-in-law live about an hour drive away, the support network is unlike what I would have otherwise been used to back home. I was already the mother of two girls born in 2015 and 2018.

The first pregnancy was easy, and ended in a beautiful childbirth experience that I treasured for many years. When it was time for our second daughter to come, I had naively decided to replicate the previous experience, but I was mistaken to think it was possible or wise. After a very stressful arrangement for babysitting our 3 year old daughter, we went to the hospital to dive into an experience that eventually became traumatic, requiring psychological therapy during my third pregnancy.

The traumatic dimension set the stage for an approach to a third pregnancy with mixed feelings of excitement and fear, which propelled me into a need for therapeutic diary keeping. The work presented here is extracted from those diaries which I meticulously kept for my own sake, and now decide to share with the community.

The matter of ethics is hence called upon in this framing. Autoethnography is poised in a grey zone for formal ethics approval, and in Sweden, the national ethics board would most likely not find reason to deliberate on this case. The data gathered is my own, and consent was carefully negotiated with my family. Through censored inclusion [23], I disclose only the events which my partner and I feel comfortable sharing. His engagement in documenting this autoethnography was guided by our common will to make this a positive birth experience for our family, as guided by our therapist. This pictorial is a still image of a point in time, capturing a consensual sharing of our lives for the sake of the careful development of the technologies that crossed our paths. It will necessarily have to be revisited once our son is of age to have his own judgement of it.

METHOD

The autoethnography started in April 2021 and spans until January 2022. I aimed to answer the following research question: *what are the neglected intra-actions with digital technology during pregnancy and childbirth?* I have documented the events through photo, video, diary, and illustrations. Here, I use the concept of annotated portfolios [18, 31] not only as intermediate-level knowledge in design processes, but as a method for analysing intra-actions. It is the afforded comparison between the images that brings forward the conceptual characteristics of each situation.

I engage in artefact analysis of the complexity of my own experiences [27], supported by the use of the imagery combined with the annotations and the narratives. The documentation happened for the sake of our family and at our own volition, but the annotations were developed after the fact as a research activity. In that sense, one could say the research questions is constructed after the data was gathered, but before it was condensed into this portfolio.

NARRATIVES

Below, I present the narratives in chronological order and in the form of illustrated and annotated vignettes where a piece of digital technology is a component the experience.

Testing

It was a weekend in April, our youngest daughter turned 3 years old and we had a small party for her in our garden. I was feeling somewhat queasy and had an overwhelming feeling I may be pregnant but it should have been too early to test. But I caved in and tested the next day, and saw a very faint positive on a normal cheap paper strip test (Figure 4). I had purchased a couple of digital pregnancy tests out of curiosity, but they were expensive and I decided to not use one then. An extract from my diary says “*the little paper strip had a shy pink line, it told me that maybe we would be welcoming a new baby in December. But with no certainty, with a degree of ambiguity, and the time to wonder. I thought*

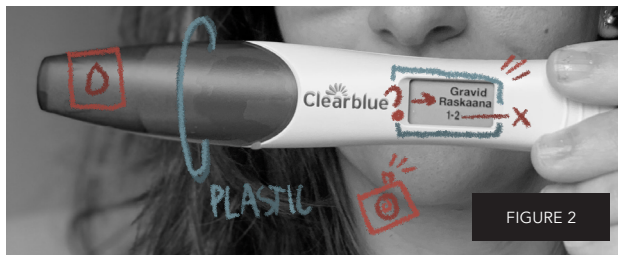


FIGURE 2

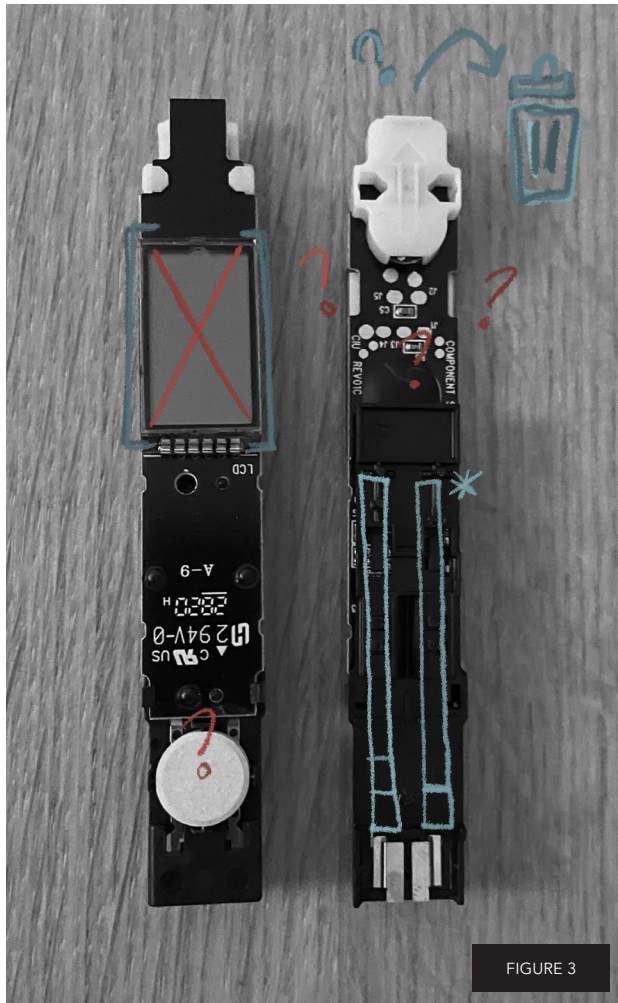


FIGURE 3

about using the digital one but I was afraid of seeing a negative result on it". While we were ready to welcome another baby, it had been a rushed decision that became a reality much faster than we expected. The next day, when I woke up, I felt the usual signs that I was indeed growing a new human, and already certain I would get a positive result, I grabbed the digital test. It blinked, slowly thinking, and then clearly showed a positive in text (Figure 2). That evening I wrote: "Even though I was already fairly sure this was happening, having the words on a tiny screen made me send the picture to my mum. She was so happy of course, but simultaneously I wondered why did I allow a digital agent to be informed and certain of my private information before I did myself. Why did I need this small computer to be such a relevant part of the shared news?". I kept the test for a couple of days and suddenly – the text was gone. For my other children I had actually kept the tests that told me they were coming. The two lines are forever etched. But why would I keep an empty blank machine? (Figure 3) I was uncertain how to best dispose of this small device, but most of all, I was curious about what it contained. So I cracked open the case and found inside two small paper strips very similar to the ones I used myself. For weeks, my ideas jumped from how to convert the corpse of the test into a keepsake and juggling the small guilty feeling of using electronics which I could not sustainably dispose of to confirm something my body was already so sure of. It felt right to crack the test open the same way it had cracked me open, so I stored it in the same box as all the other memoirs (See Figure 20).

Mobile Phone in the Pregnancy

A sure mark of a pregnancy is downloading an app. I had done that twice already, although the second time around I barely used it. During this period of my life, I was intentionally attempting to reduce my mobile phone screen time. The apps I downloaded had a lot of information which during my first pregnancy was valuable, but now felt distant and repetitive. The advice and information given both before and after giving the baby seemed to me to be focused on a first experience,

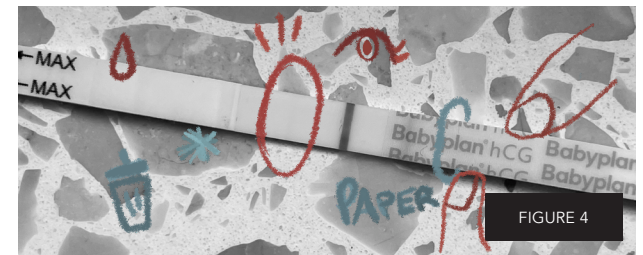


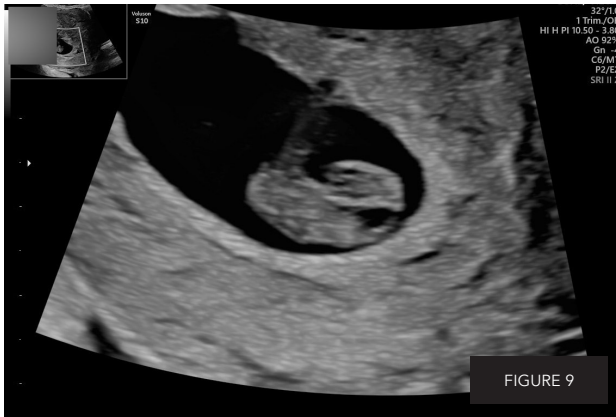
FIGURE 4



FIGURE 5



FIGURE 6



existing, and she was over the moon to be able to share this moment with her dearest friend. We played with this monitor listening to their own hearts over their chests, also taking the chance to explore together what a heart is for. Ultimately, this monitor was used in our family as a way to explain and play with the understanding of our own bodies, and a starting relationship with the upcoming new member of our family.

Ultrasounds

I did a total of five ultrasounds during this pregnancy – which is somewhat unusual for Swedish healthcare. Usually, only one or two ultrasounds are offered for the diagnose of potential diseases or malformations.

The first ultrasound:

Since this was our third child, we decided to visit a private clinic to do an early ultrasound at 8 weeks of gestation. We wanted to share the news with the older children as I was feeling very sick everyday and it was difficult to pretend nothing was happening. Thankfully everything was in order, and a tiny heartbeat could be seen. The private clinic allowed for the partner to follow along which was a privilege during the pandemic. As we prepared to leave, the ultrasound technician informs us that we can download images and short videos from the appointment through an app, using a code sent by email.

The procedure was somewhat complicated, and that app never used again. I downloaded all the sonograms but have not looked at them since (Figure 9).

The second ultrasound:

Our region started offering earlier ultrasounds to be able to, for example, diagnose twin pregnancies earlier than it would otherwise. I got a time to visit the hospital, strictly on my own due to the pandemic. This ultrasound can result in bad news, yet most pregnant people got denied even a video phone call. In my case, there were no unfortunate news, but as the midwife moved the ultrasound wand around, I got for the first time a glimpse of what finally looked like a human being. She quickly grabbed a still picture of his profile (See figure 6b.), but did not linger in that moment, and moved on to what she had to medically check. That day's entry on the diary reads: *"I got to pay the equivalent of a lunch to get a small shiny piece of paper with the still image of our baby. I wish I had gotten to look at it just a moment longer."* This shiny piece of paper is, however, the one that has been hanging in our hallway for all our visitors to see (Figure 10).

The third ultrasound:

This is the most important ultrasound, medically speaking. Since we were on vacation, we had to do it in another country, where ultrasounds are done primarily

by medical doctors rather than midwives or technicians. But the fact we did it in another country meant my husband could follow along, which was great news. The appointment was more than twenty minutes late, and the doctor welcomed us into the room but proceeded to fill in all the data on a computer. Since I was not part of the system, I had to answer a battery of questions which I had already answered when booking the appointment. The screen was turned my way, and more than once I had to explain the Swedish system and how different the process is, and having to correct the input she slowly wrote with her keyboard. The ultrasound itself was very thorough and cold. We both left with a feeling of abandonment, even though we were returning home with the news of a healthy baby, and a folder full of images from all possible angles but printed on cheap paper (Figure 11).

The fourth and fifth ultrasounds:

During one of the appointments in the later weeks of the pregnancy, the midwife placed her hands gently on my belly. It was time to feel how the baby was placed inside the womb. I had felt for a while that the movement was not as the last two times, but it was a thought I did not put much energy into. She touched gently and asked me where I usually felt kicking. She tried to map the body of the baby on mine, failing to feel the head towards

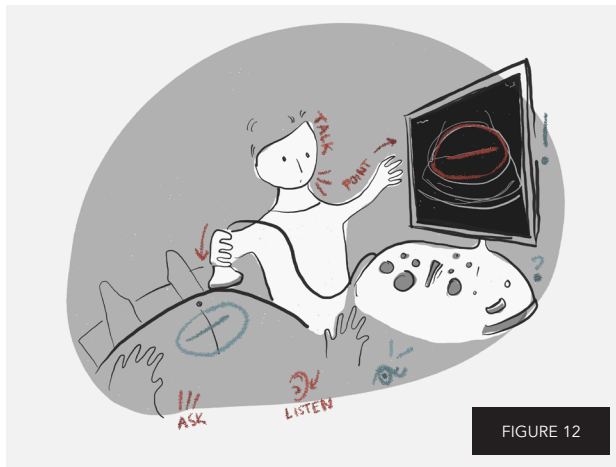


FIGURE 12

the cervix. She told me she was fairly certain the baby was breech, and so was I once I felt her touch. She was careful in her negotiation, with her hands on my body, but in constant contact with me. To verify, I was sent to another room to do a quick ultrasound. I had to wait quite a long time until the midwife that could use the ultrasound machine had time to see me. We chitchatted as I lay down, I asked something about the machine and she told me this was an old model, not a very good one. She took the cold gel and immediately as the wand touched my body, I saw the round shape of his head turned upwards. The midwife said nothing for a minute, and kept looking around but I already knew. In that moment I wished I could take the wand myself and get some minutes alone with my breech baby and the ultrasound machine. I wanted to be the one to control the views, to mediate the touch, to be in control of something. Once home, I drew a picture on my diary (see Figure 12). I spent the next week worrying about how to deliver a breech baby and hanging upside down from the sofa, but still feeling the hands of the midwife mapping my baby. But the next time I saw her and the machine, I was fairly sure our baby had given me some slack and turned the right way. And he remained so for the rest of the pregnancy.

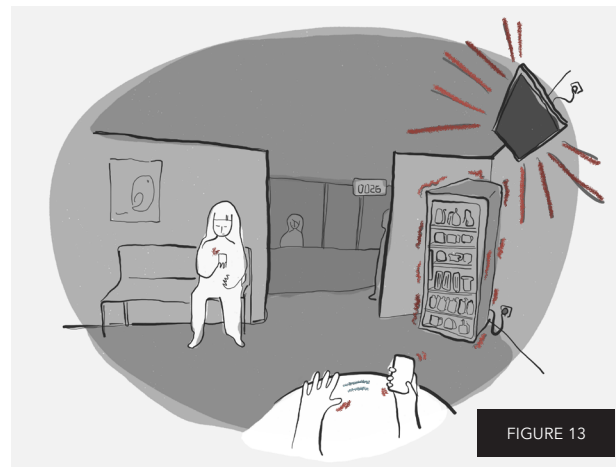


FIGURE 13

Waiting Room and CTG

One time, late in the pregnancy, I realised a whole day had passed by without much movement from my baby. One is instructed to call the labour ward in this case, and they asked me to drink a big glass of water and monitor the movements more closely for two hours. Nothing much changed, so they advised me to go to the hospital for a closer check-up of the situation. While I was waiting, there was only one other woman in the waiting room. She was in some distress, I could hear her breathe and sighing, but I was focused on my experience in trying to feel my baby move as much as possible. The room was full of noises, a blasting TV, and a loudly purring fridge. The other woman's phone kept vibrating with incoming messages, and I was nearly overwhelmed by all the sounds. I wrote: "I know I cannot hear my baby anyway, but now I feel like I cannot even hear my own thoughts over the cacophony. I tried to focus on my own belly but quickly took out my phone instead to try to distract myself from all the distractions." (Figure 13)

When I was finally called, the midwife ushered me to a small room, where the lights were dimmed. There was a single machine in there, taking the majority of the space near to an examination table. I was instructed to sit down



FIGURE 14

as she wrapped the elastic CTG (Cardiotocography) bands around my waist and asked me if I had felt the baby in the meantime. There was no news to report and at that point I started feeling increasingly worried. She fiddled with the CTG sensors and applied the contact gel to my belly without first saying it was cold – not that I needed to know, I had heard that countless times, but not being told for once felt like a step in the protocol was missed. I wrote after the appointment (Figure 14): "It took some minutes to get a good sound on the baby's heart but finally, it was loud and clear, emanating from the strange machine with a million buttons. The midwife had told me to hold on to this small handle with button and press it every time the baby moved, and for the first time in a while, I felt like I had a mission to accomplish. She pointed to the machine's small monitor and said: 'You see there? If a check mark appears you press this button on the wall. We can see everything on the monitors in our room, but not this little check mark. It can take from 10 minutes to one hour'. With that, she left. I was now strapped to the machine, so I could no longer reach my jacket where I had left my phone. I just wanted to let my husband know this could take a while, but I decided to not move anymore. Peace came over me. The heartbeat, loud and clear, the little button, the



big button I had to press. The blinking little heart, the paper spitting out of the machine with all its curves. I stared at the curves, they showed the contractions. I had some, I could feel them, they are called Braxton Hicks contractions. That is probably the name of a man. It was dark outside, a cold winter afternoon, a small Christmas lamp decorated the window. I took some deep breaths to see if that would register in the curves, but I was uncertain it did. Too bad I had sat so uncomfortably in the first place, I wondered if I could just move. I decided to move and relax. And then they came, the kicks and movements, he was definitely there and feeling well.” I pressed the button on the wall and the midwife did not come. The checkbox eventually disappeared, but I decided to press the button once more. Finally she appeared and told me I could go home – the baby was

fine but I should feel reassured that it was entirely fine for me to come back at any time if I ever felt like he was not moving so much anymore. But the next time I came to the hospital it was to give birth some weeks later.

The Birthing Room

On the 21st of December 2021 I spent the day working from home. My mother had travelled to come be with us. It was the date of the winter solstice and one day before the due date, and I had my heart set on that date for his birth. Not that it was in any way under my control. Regardless, I spent the day bouncing and standing, until both my husband and mother left to pick up the older children from school. When they were gone, I felt contractions were coming and going with not so great strength, but I connected my earphones and

played songs I used to listen to when I was a child and had rarely listened to again. I focused in the present, and wrote on my phone: 16:21; 16:26; 16:38; 16:53; 17:01; 17:09; 17:21; 17:34; 17:51; 18:02; 18:07; 18:17; 18:21; 18:30; 18:35; 18:43. As the contractions increased in intensity, I called the hospital coordinator to let them know I would most likely be coming in soon. But the person on the phone thought my voice sounded too calm to be time – how can we read one another through the phone? The time passed and the contractions continued, and at around 19:00 it was clearly and suddenly time to go to the hospital. I asked my husband to call this time not with a question but with the information that we were driving in. We arrived at around 19:10 and were shown to a triage room which can be seen in Figure 16. It had a lot of equipment, a bed against the wall, a small

bath tub, and a toilet behind a curtain. After answering a few questions, a COVID-19 test was taken, I was connected to a CTG. The bands tightly around my waist, but this time, with a bluetooth connection rather than cables, which afforded some freedom. I remembered that during my first daughter's birth, I was fascinated by observing the curves of the CTG on the monitor. I had taken an epidural then which rendered me nearly pain-free, and therefore the contractions were more visible on the screen than were felt on the body. This time it was different, they were coming closer and stronger together, and I barely glanced at the screen. Figure 15 shows a picture of me sitting on a ball with the bands attached. The midwife asked me eventually if I could climb on the bed so she could check for dilation as she heard on my voice that the birth was progressing quite rapidly. As I stood on all fours on the hospital bed, the

student midwife started to fidget with the CTG sensors on my belly. But instead, the leading midwife intervened, saying "*The monitor isn't registering correctly but I will trust you, we can see you are having contractions.*" At that time I asked if I could be moved to a room with a birthing tub as I had wished a water birth but all rooms were taken and this is when I understood I would be giving birth right there, not anywhere else.

To give me a chance at experiencing the water, the midwife started filling the small tub in the room. I had hoped my mother could have followed to the hospital to experience the whole birth, but at 20:10 she called saying my parents-in-law had finally arrived to watch the girls. I told her, between contractions, that she would not arrive in time. Her voice wished for the best but the sound from the phone felt far, far away. Things progressed at a speed I could barely comprehend and

I asked if a birthing stool was available. An assistant nurse fetched one and prepared it quickly. As I stepped out of the bed and leaned against the bed, the waters broke, and within two contractions I was sitting down on the stool giving birth to our son. The midwife reminded me to reach for him myself and so I did, guiding me up towards my breast in complete awe over how fast it all happened. Figure 17 shows two illustrations from my graphic diary of this precise moment – one I will never forget: As I lifted my newborn baby towards my chest, *I felt the CTG sensor coming in between us.* A big plastic, hard and uncomfortable piece of non-human technology. I asked the midwife if she could remove the band after some seconds, and I wonder why I did not get it out of the way myself.

I had instructed my husband to take as many pictures as possible, but in the small room and the quick and messy



FIGURE 17

situation he immediately forgot to document as much as I had perhaps wished for. When our first daughter was born, by coincidence, a friend had asked if he could follow along and document the birth. We have fantastic pictures of the whole process, which we look back to with fondness. There are no photos of the birth of our second daughter. So this time, guided by our therapist, I wanted to make sure I could keep some memories. Figure 19 shows the moment of cutting the umbilical cord that I had chosen to do myself this time. Although he captured this beautiful picture, in hindsight, I wish I had a better documentation of the birth. How many of us have birthed and regret not being able to keep the memories and reconstruct the experience? How many of us, conversely, have registered these memories in ways we do not wish to keep?

DISCUSSION

This pictorial represents a collection of experiences, developing over an extensive period of time. The implications for HCI are not yet fully unpacked, but I present them here as neglected things. This account is but a partial perspective [20], from the standpoint of a privileged white cis-gender woman in a normative relationship and a healthy pregnancy, in a wealthy country.

On an Annotated Portfolio of Intra-actions

The use of the annotated portfolios proved helpful, even beyond the post-phenomenological perspective offered by Hauser et al. [21]. From my perspective, it adds to the nuanced and ambiguity-compatible set of feminist methods available to HCI designers and researchers [4]. In this case, the choices I made in engaging with my pregnancy are of a design nature – I am, as an informed researcher, navigating both experiences that I am forced into and those that I chose myself. The “designerly” thoughts permeate through everything, and my stance as an interaction designer is central to the felt experiences. In this case, I leap beyond a research through design (RtD) approach that is grounded in making, but produce instead pieces of design analysis in the form

of annotated images and narratives which question the designed worlds we live in. The result is not necessarily research for or into design [17], but effectively a way of doing RtD in the unique assemblages of agents. This could mean that designers are constantly doing research in their lived experiences – and keeping a portfolio of the intra-actions with the world is a valuable artefact for creating and communicating a design identity.

I appeal to make these lived experiences explicit through their careful and systematic analysis, for example in the form presented in this pictorial. Annotated Portfolios of Intra-actions 4th wave HCI method candidate: visual elements are particularly conducive to diffraction and alternative interpretations [7].

Tangible, Embedded, and Embodied Intra-Actions in Pregnancy and Childbirth

Almeida et al.[1] wish to make HCI less embarrassed about the female body. Their approach is through the analysis of other’s experiences (in this case of urinary incontinence), and point out that “Taboo, misinformation, and lack of self-awareness of our personal bodies can be a hindrance to provide self-care as much as care for the other”. As experts in our own bodies, HCI design researchers share the power to break taboo through publication. By exposing my own vulnerability, rather than my study participants, I hope to contribute contribute in a manner that can lead to a continuing discussion which is not limited to the present pictorial. As noted by Devendorf et al.[12], motherhood is necessarily conflicted, and riddled with societal notions, often enforcing positive portrayals of babies and children. With this pictorial, I seek not to solve the negative feelings, but to let the frictions of pregnancy and childbirth be evoked in ways that are not primarily caused by neglect in the design of computational things.

I thread carefully as to not make assumptions on the bodies of others [24], and present a set of dimensions of neglected care from my perspective, and my perspective only. My body only allows me to contribute to the already limited set of bodies at TEI [44], but it is regardless my

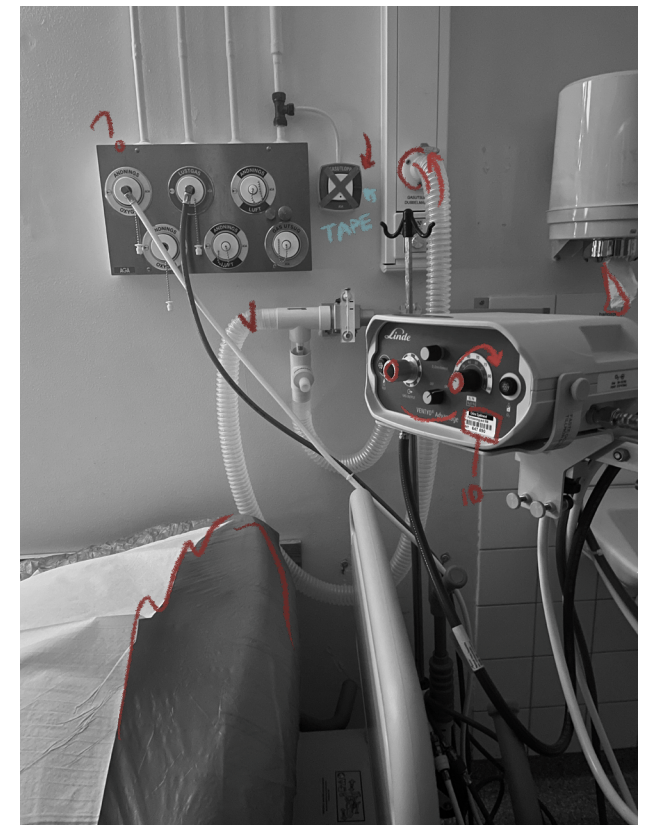


FIGURE 18



own, and I offer this account from a humble standpoint. I resist therefore the urge to provide actionable insight at this point, leaving this account as an open-ended set of stories [42].

So the question remains, what are the neglected intra-actions with digital technology during pregnancy and childbirth? In the process of building this portfolio it became apparent to me that some of the tangible and embodied dimensions of care are systematically neglected. Below, I describe the three most crucial to me: material memoirs, tempo, and correspondence.

Material Memoirs, Tempo, and Correspondence.

In the context of pregnancy and childbirth there is a unique opportunity for harmonising the intra-actions through touch and physical matter.

In this space, every intra-action may become a **material memoir** with and through the matter of the body. Bodily fluids; stretch marks; sonograms; ultrasound gels; elastic bands; plastic casings; batteries; paper strips are just some of the agents that in certain assemblages become still moments with significance to the identities of parents and children. The material characteristics of the artefacts that came in contact with my body is surfaced in nearly every stories through touch: of devices and the body, of the body and other bodies, of baby and the machines through my skin, and even of the paper qualities of sonogram images. All the small souvenirs I gathered in my box, all the images and drawings and their annotations, the pregnancy tests, the hospital journals, are frozen experiences, but most of all, important marks on who I am as a designer and a mother. They are core memories in tangible matter. As I revisit each of them, I wish they had been designed differently to deal with decay, to become capsules or heirlooms to be revisited. The material qualities of heirlooms and memoirs are already recognised in HCI [e.g. 5, 6, 11], and our community has a role to play in the design of these encounters for future parents. Pregnancy is a long endeavour, mediated through intermittent exchanges with humans, machines, and more.

FIGURE 19

Which leads me into the next neglected dimension – **tempo**. Temporality is a prevalent topic in recent HCI research [e.g. 36, 41, 46], but what I refer to the composition of the temporal threads of the human and more-than-human agents at play. During pregnancy and childbirth, many clocks tick simultaneously – from slow growth to rapid heartbeats, from regular contractions, to irregular movements. In my narratives, I found great solace in the moments of respite that some encounters gave me (such as the quiet ECG room), but also disturbance in the fast paced actions without consent (no lingering at my child’s profile image during the ultrasound), or the slow and unnecessary repetitions of information. Tempo is about both sound and silence, making and unmaking, moving and pausing. Considering digital technologies as instruments that must play at different tempos may change the way they are designed.

This notion of tempo is tightly connected to the third neglected dimension – **correspondence**. Ingold [26] describe this notion beautifully through a set of stories as a testament to the written word. As he notes, “corresponding with people and things – as we used to do in letter-writing – opens paths for lives to carry on, each in its own way but nevertheless with regards for others.” Most of the stories in this pictorial discuss precisely the idea of correspondence. Correspondence is a type of intra-action that is an intentional and directional making of new assemblages. The bodily correspondence between the midwife, my baby, and myself, unlike the careless emailing of the screening results. The tangible and limited quality of the home fetal heart rate monitor, streamed into two small earphone buds, created a small intimate space and silent correspondence between my daughter and her friend.

This limited set of neglected dimensions leave space for more to surface. The TEI community has a role to play here, in the reinterpretation of my stories and in the extended understanding of the intra-actions our designs are mediating. The identified agential cuts in this pictorial are reminders of where we could be going in this space, but most of all signifiers that “our ethical

and moral deliberations in HCI should not only centre around the question what impact the technologies we create have on humans, but rather, what humans we become in the intra-actions with these technologies – and whether this is who we want to be.” [16].

The careful touch of the midwife came in strong contrast to the cold touch of the ultrasound – both to tell me the same information. The email and the letter; the home heart-rate monitor; the design of the waiting room; the paper and the digital ultrasounds; the forgotten sensor between me and my baby: all of them are what we are, but are they designed for what we want to be?

CONCLUSIONS

The unfolding of my experiences in pregnancy and childbirth, and the identification of the agential cuts in the form of annotated images, shape and describe intricate dimensions of care. While purposely not fully unpacked, these accounts shed light on the necessity to incorporate design knowledge in the construction of these intra-actions. Through the analysis and varying representation of autoethnographic accounts, we open the field for discussions beyond the format of papers. The tangible and embodied qualities of pregnancy and childbirth make for a particularly difficult and vulnerable space where every contribution is of value. This design space should be open to all formats of publication where socio-technical assemblages that are neglected may be surfaced and cared for in HCI.

ACKNOWLEDGEMENTS

This pictorial is entirely dedicated to our children, and in particular our son. We could not imagine during the pregnancy the joy he would bring our whole family. He grew his first tooth today! I thank my husband for the neverending patience and support of my weird endeavours. I thank all other autoethnographers out there for giving me some courage to be in the same space. Lastly, I would like to acknowledge the reviewers of this pictorial for their suggestions and kind words, as well as Kelsey Cotton, Michael Heron and Miriam Sturdee for their help revising and proofing.

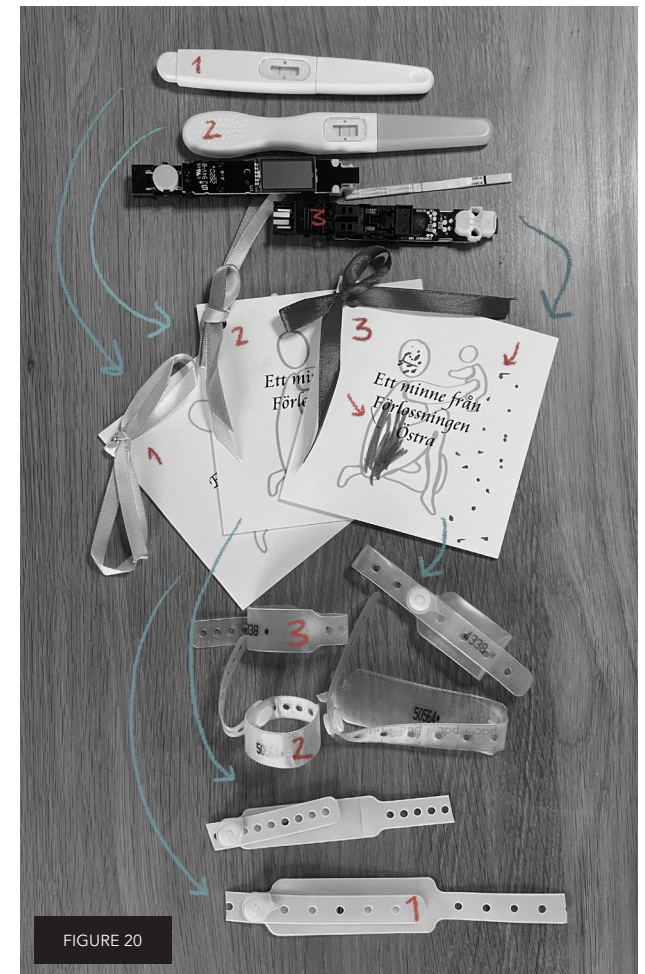


FIGURE 20

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