
Admixed Portrait: Design Intervention to Prompt Reflection on Being Online as a New Parent

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Abstract

This Pictorial documents the process of designing a device as an intervention within a field study of new parents. The device was deployed in participating parents' homes to invite reflection on their everyday experiences of portraying self and others through social media in their transition to parenthood.

The design creates a dynamic representation of each participant's Facebook photo collection, extracting and amalgamating 'faces' from it to create an alternative portrait of an online self. We document the rationale behind our design, explaining how its features were inspired and developed, and how they function to address research questions about human experience.

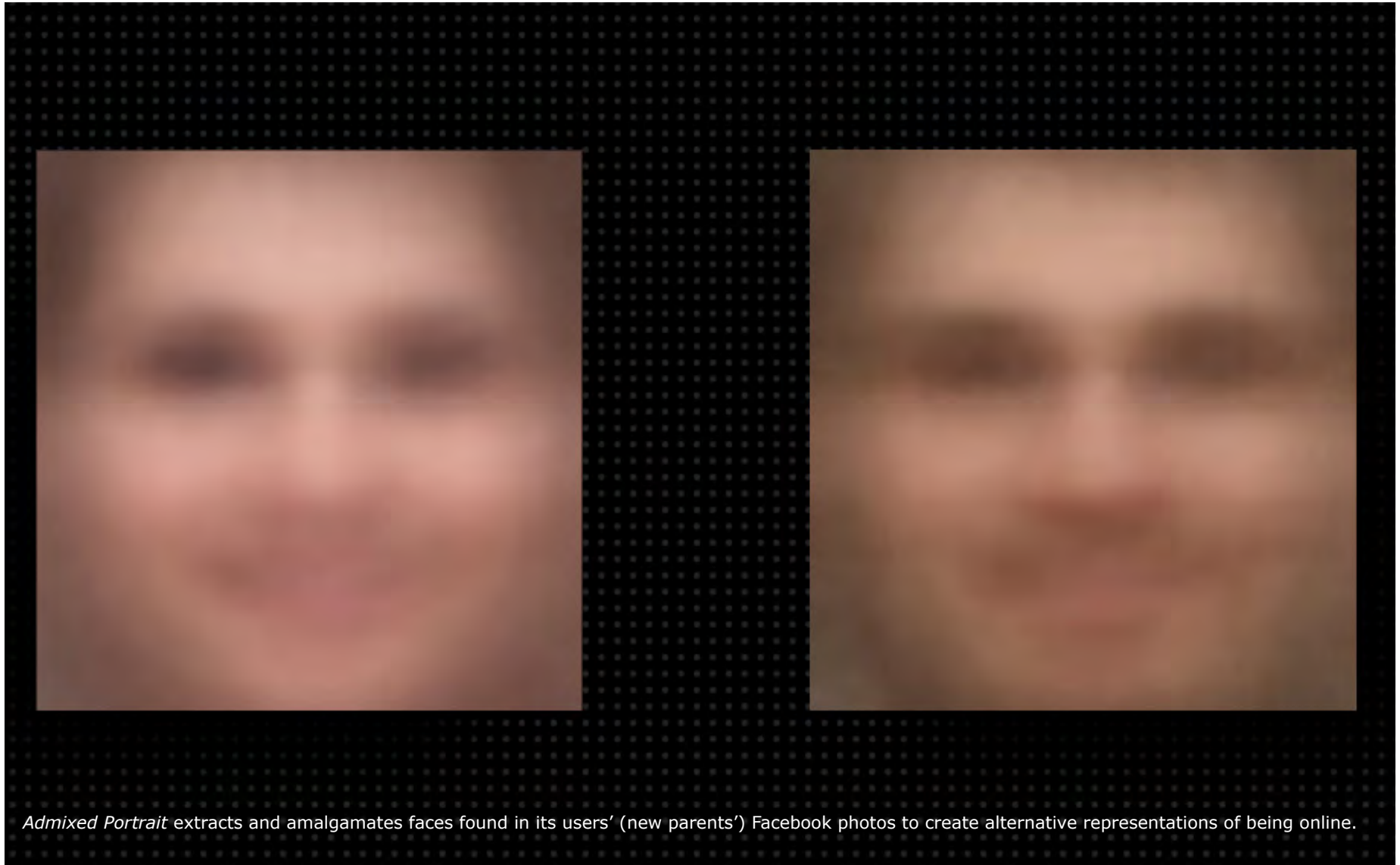
Authors Keywords

Digital personhood; parenthood; social media; practice-based research; reflective design.

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

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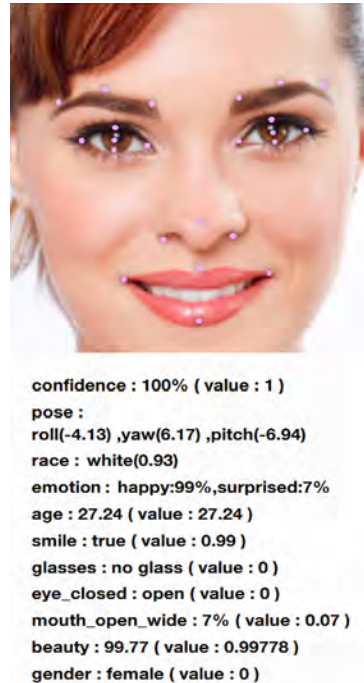
Admixed Portrait extracts and amalgamates faces found in its users' (new parents') Facebook photos to create alternative representations of being online.

Admixed Portrait as a Field Intervention

Admixed Portrait is an encased, digital display, which offers an alternative and dynamic representation of its users' online portrayal as captured by their Facebook photo collections. It was intended to serve as a design intervention in a field study of new parents, which aimed to qualitatively understand people's everyday experiences of portraying self and others through social media over the course of becoming parents for the first time. The device was deployed in the homes of participating parents and parents-to-be to invite reflection on this subject, delivering insights on human-computer interaction. Herein, we contribute a methodological account of our design process, and how *Admixed Portrait* was inspired and developed as a deployable appliance that functioned in the research as a tool for reflection, to address questions about human experience. The field study design, procedure, analysis and results will be comprehensively reported in future work.

Digital Personhood through Life Transitions

The design inquiry forms part of a two-year interdisciplinary project *Charting the Digital Lifespan* (CDL), investigating how UK citizens make sense of digital personhood in terms of creating and managing digital identities across the human lifespan. For adopting this temporal, lifespan perspective, the project investigates lived experiences at a three significant life transitions: coming of age, becoming a parent and entering retirement. By engaging research populations currently experiencing these life transitions, we aim to capture different generational perspectives on the subject. The project further focuses on the study of social media for online representation. The overarching project methodology is empirical, experience-centred and pragmatic [9], bringing together Humanities and Computer Science disciplines to deliver social, cultural and technical insights to improve the design of online services and UK policy making on digital literacy. We now turn to describe design work carried out within this unfolding project.

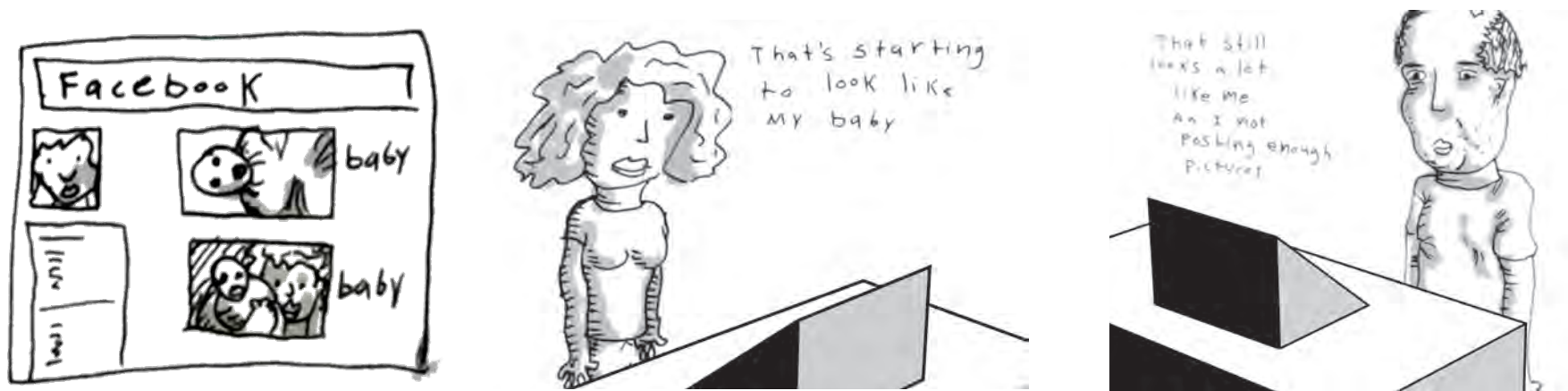


Framing the Design Space for Inquiry

A core, pragmatic design objective within CDL is to generate insights that inform the development of tools for empowering UK citizens to make sense of how they are represented online. At the project start, in framing its scope from a design perspective, we were drawn to how social media has signalled and scaffolded new forms of photographic representation (e.g. Facebook profile pictures, www.facebook.com). This phenomenon has been recognised and discussed extensively in terms of a sociotechnological shift in photographic practice away from traditional Kodak Culture, with implications for online identity management [5]. Considering the design space for CDL and its focus on social media use, we chose to further focus design inquiry on photographic expression in social media portrayals.

Early scoping work highlighted another phenomenon to frame our design considerations: the use of algorithms for online image categorisation; and how online portrayals of people may constitute a digital photo plus the algorithms that process it [8]. For example, Rekognition, a commercial API (<https://rekognition.com>, top) demonstrates the potential inferences that an algorithm can make from analysing a human face. We found this system's detection of 'emotion' and 'beauty' to be a curious interpretative feature; and using the system within the research team, we actually found the outputs it generated to be misrepresentative.

We also reflected on the potential of algorithms to make sense of image collections. For example, the composite photographic representations made by The Postnational Monitor (<http://pmsol3.wordpress.com>, bottom) each depict an 'average face' of women who share nationalities. Such examples of existing online projects illustrate how algorithms can shape and alter representations, which motivated and inspired our early design concept sketching.



Design to Explore Being Online as a New Parent

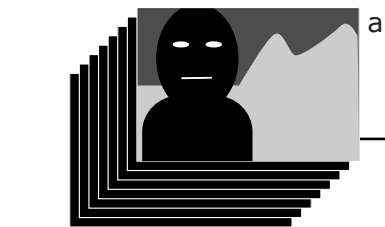
Our first study for CDL explored how people make sense of creating and managing online representations of self in the transition to parenthood. Key research questions included: How do new parents experience digital personhood during this life transition, mediated by social media use?; and how does social media support and constrain them in self-representation? - a question to inform the broader CDL agenda to consider supportive technology design.

From the outset, we acknowledged our subjective positioning as politically, socially engaged designers and researchers interested in critically exploring the potential of new tools for supporting digital personhood, in dialogue with our research population; this connected with our methodological aim to generate phenomenological, empathetic understandings about lived experiences [9]. Our approach was guided by the concept of using design as a practice-based form of HCI inquiry, informed by critical [2], ludic [3], and reflective [6, 7] design, and interdisciplinary methods such as technology probes deployed in field studies [4]. We therefore set out to design a tool to prompt reflection on the research subject by new parents in the context of their everyday lives. Akin to a technology probe, this design would be deployed in a field setting, as an intervention for inviting new perspectives on how Facebook photo collections convey a sense of self portrayal online. We conceptualised this intervention as poetic and critical as its mechanisms and material features would be open to subjective interpretation.

Inspiration and Concept Sketching

A number of the research team members represented the 'new parent' population, so our early concept sketching was informed by their personal experiences as well as by the extant literature. Specifically, we drew upon autoethnographic observations, of new parents - and mothers even more than fathers - publishing photos of their children on Facebook, and uploading more photos after the transition to parenthood - a phenomenon supported by recent empirical findings in a US study of Facebook use during this life transition [1]. In light of this insight, and given Facebook's widespread adoption in the UK, we chose to contextualise our study, and design intervention, in new parents' Facebook use with photography.

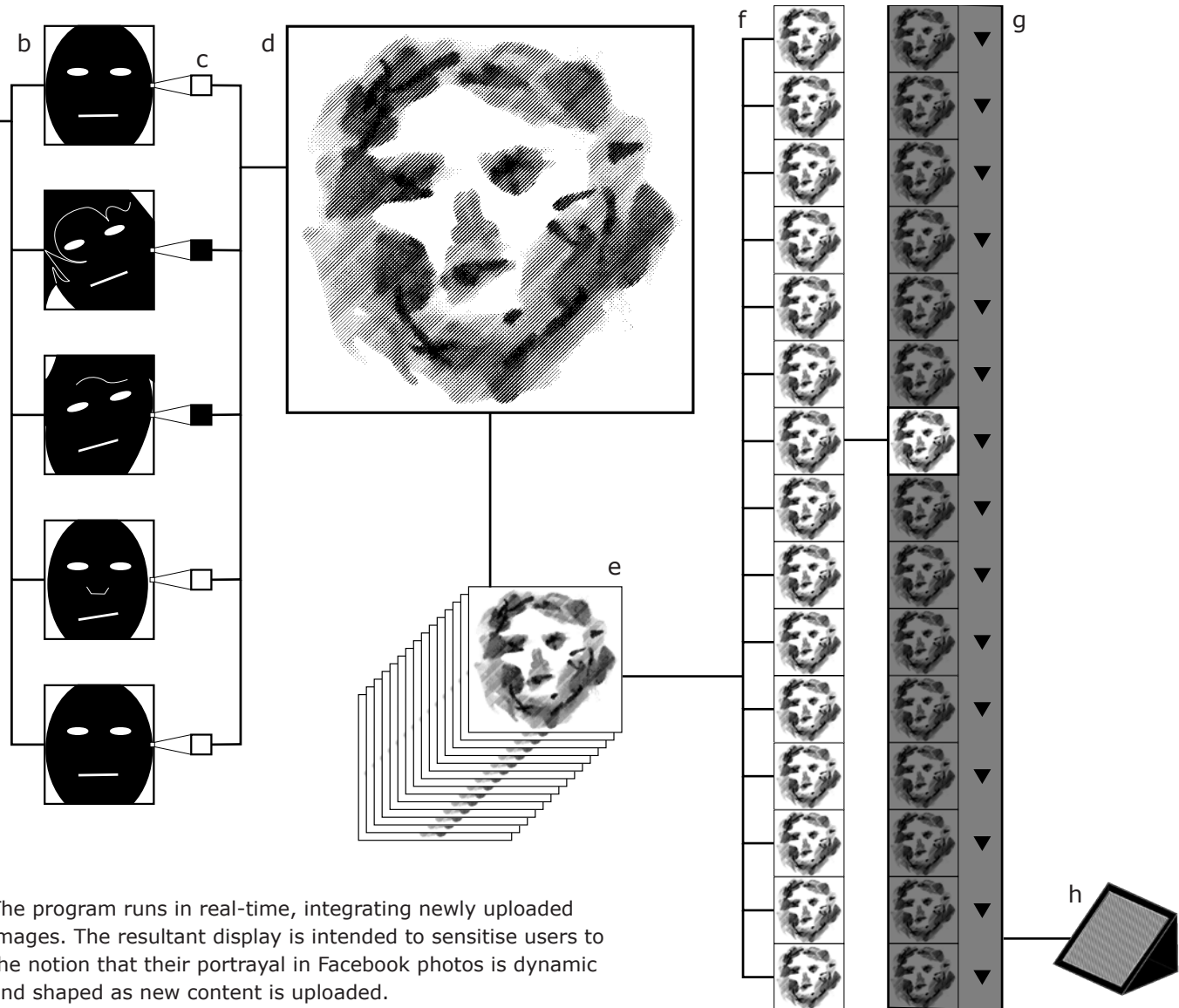
Consideration of 'who' a parent chooses to portray through Facebook photos, and 'how', is found to gain new significance in their transition to parenthood in light of changes to the nature of content posted during and after this life transition [1]. This speaks to the broader CDL concerns to consider the changing nature of self-portrayals as life unfolds. Our concept sketches (e.g. above) explored an interventional situated display that could sensitise new parents, in the course of daily life, to the representational nature of their Facebook photos uploaded in the past as well as in the present, which may reflect altered identities of them as individuals and their emerging family unit as well as others.



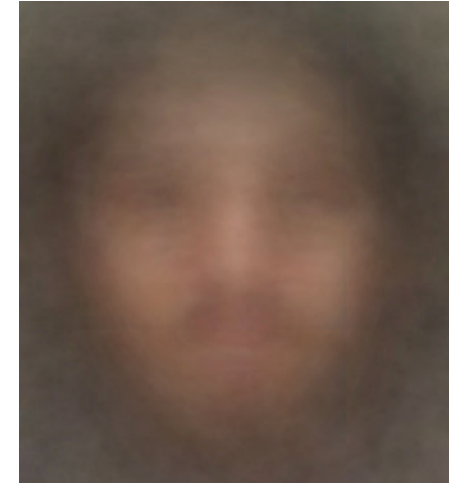
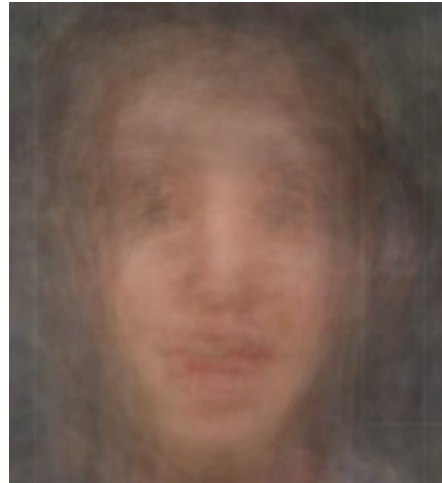
Algorithm as Design Feature

Concerned to explore digital literacy and self empowerment through the design inquiry, we also wanted the intervention to prompt user reflection about how Facebook photographic content constitutes data that could be processed and reappropriated by computer algorithms to automatically create alternative online representations of people [8]. Our final design idea took this user content as an input to generate alternative portraits.

Core to the *Admixed Portrait* design is an algorithm that creates a dynamic representation of each participant-parent's Facebook photo collection by (a) extracting all of the faces it finds in this collection, (b) capturing the user and others, and (c) averaging them pixel by pixel, to (d) create an average, amalgamated face. The last 15 amalgams (e) are then rendered as a filmstrip (f) to be masked and animated (g) in the final display (h).



The program runs in real-time, integrating newly uploaded images. The resultant display is intended to sensitise users to the notion that their portrayal in Facebook photos is dynamic and shaped as new content is uploaded.



Prototyping *Admixed Portrait*

In prototyping and developing this design, we explored pixel averaging and image positioning methods. Prototypes explored the dynamics of digital imaging through the creation of a portrait that updated live as new photos were posted on Facebook. Through prototyping this real-time behaviour, and testing its effect on users in our lab, we found these users to anticipate the impact of new Facebook posts on the nature of the portrait, thus shaping their interpretation of it. In these initial tests, we explored the idea of sustaining continual subtle animation in the portrait, to convey notions of liveness and temporality in the viewing experience. We achieved this by looping a 'filmstrip' of the last 15 amalgams on the display, which worked well to sensitise users to the study's conceptual concerns and to sustain engagement.

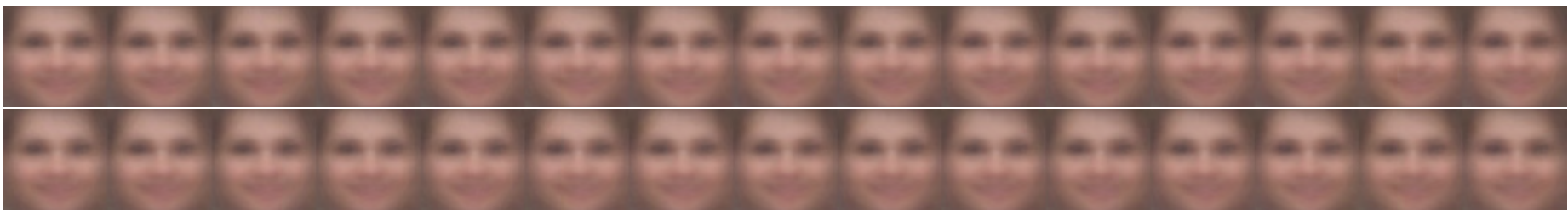
In sum, we considered the following aesthetic qualities that the design must have to function as a tool for reflection in the field setting.

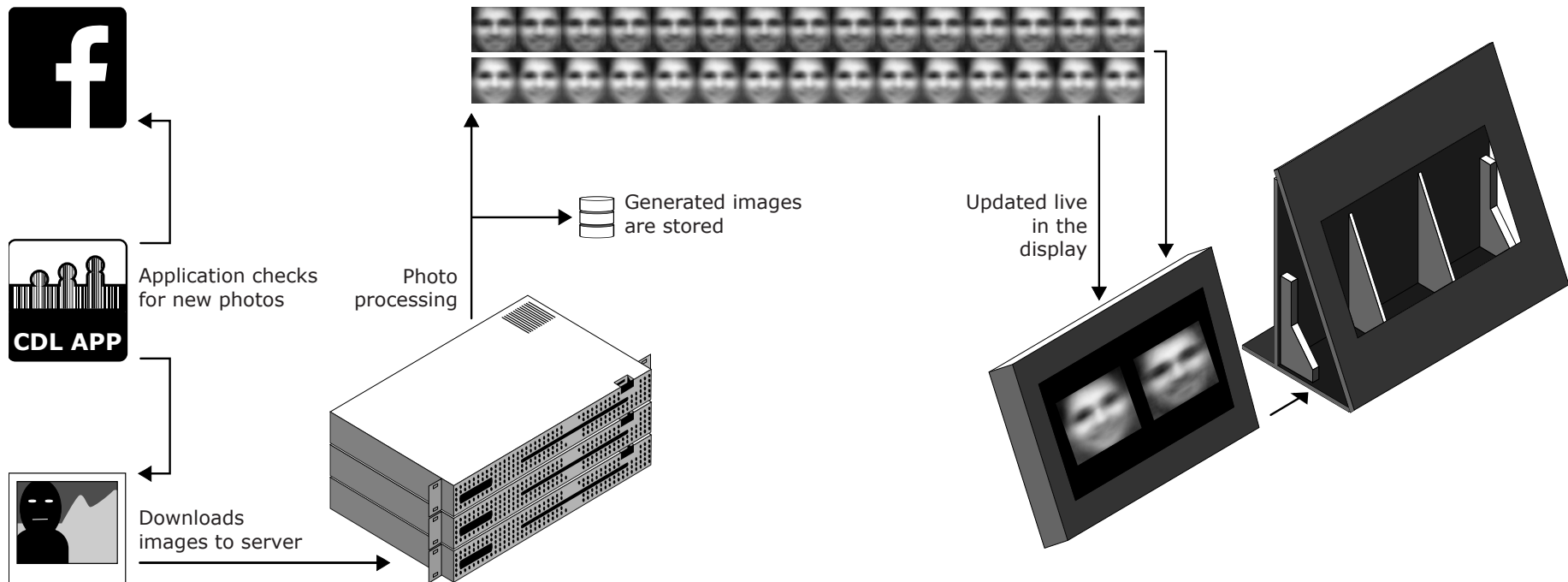
Dynamic: The display should respond in real-time to Facebook activity, creating anticipation in the user, prompting reflection on the how online portrayals of self and family may change over time, mediated by photography.

Ambient: Whilst being animated to sustain visual engagement over time, the display should be non-intrusive in a participant's home.

Poetic: The portrait should be open to subjective interpretation, a face in which participants can identify themselves whilst doubting self-recognition, to prompt conversation with others and questions about how identity is sensed.

Prototypical: It should not be read as a commercial product, but it must not look unfinished, and must convey integrity as a robust, functioning device.





Building a Deployable Device

The aforementioned considerations directed the fabrication of the portrait as a domestic appliance, deployable in the homes of new parents participating in our study. The final design relied on a Facebook application that detected when new photos were posted and a remote server that performed the computation and hosted the portraits to be displayed.

We designed the interface to accommodate the display of either one or two portraits within the frame. We speculated that, in households in which both mother and father are both Facebook users and were both willing to participate in the study, juxtaposing the mother's portrait with the father's, side by side (see above right), would invite an interesting comparison of their respective portrayals of self and others, building upon insights of [1].

Creating a deployable home appliance presented new design considerations. In an iterative process we arrived at a casement design for the portrait that resembled a digital photo frame, to make thought-provoking connotations to family portraiture of a pre-digital era. The frame was left unadorned, with the intention to give the encased portrait visual salience.

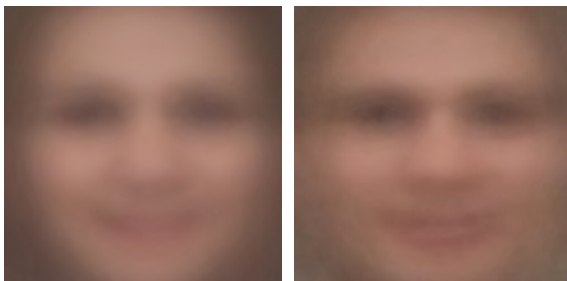
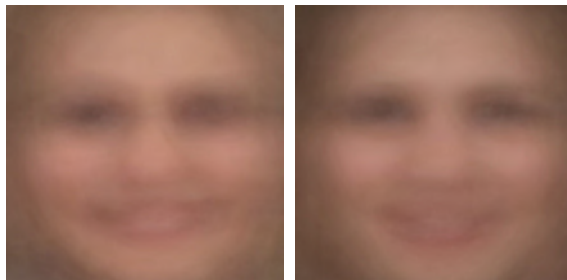
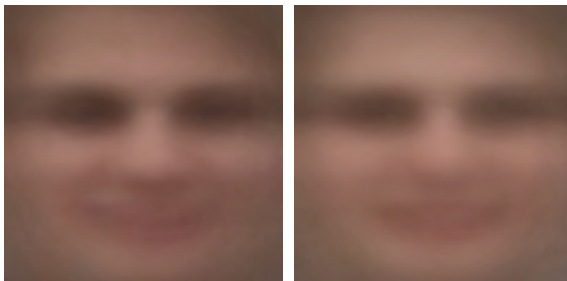
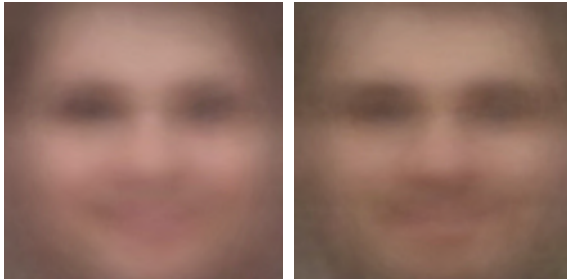
For the device to work reliably and autonomously in a home setting, it had to be easy for its users to setup and maintain, with functional features that did not detract from the salience of the portrait display. The device also had to provide the means for users to restore its functioning in case of failure; this was achieved through a single button press. All other forms of troubleshooting were handled remotely, keeping the researchers' technical intervention to a minimum.



Field Deployment

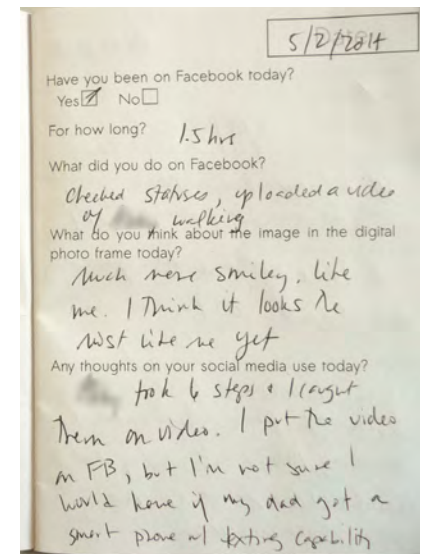
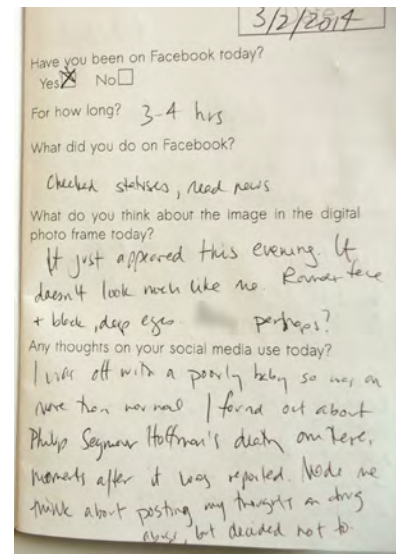
Admixed Portrait was deployed in five UK households, in each case over a four-week period, to address the research questions included above (see p.4). Details of the recruitment method and sample for this deployment are excluded from this Pictorial account, because herein we focus on how *Admixed Portrait* was designed to function in the field setting as part of the empirical engagement. The device was configured to connect via wireless Internet with a server processing participants' Facebook collections to display the 'live' portrait.

The deployment was framed by: an initial semi-structured interview following device installation at the first home visit; interim participant-researcher dialogue via email and text message; and an exit interview at the end of the deployment about experiences of use.



Working in the Field

A key feature of *Admixed Portrait* as a reflective tool is that it is a non-interactive representation of Facebook activity taking place elsewhere. Working in the field, the device created a context for each participant to focus, not on interacting with the device *per se*, but rather on the sensed aspects of their Facebook activity - and in some cases that of their partners - as they interpret it from the device's display (left). This reflexive engagement was captured at interview but also in diary entries. As part of the study, we invited participants to keep a diary (right) to optionally document daily reflections and experiences on their Facebook portrayals, guided by questions we provided, and prompted by living with the *Admixed Portrait*.



Intervention to Invite Reflection and Sense Making

Study data was collected in the form of voiced participant reflections. Herein, we exclusively use extracts from a participant's diary (above) to demonstrate how *Admixed Portrait* worked as a field intervention for inviting reflection and sense making on the research subject. In her opening diary entry (above left), a participating mother 'sees' her child (name anonymised) depicted in her portrait, through "Rounder face and black, deep eyes", arguably sensitising her to the representational potential of photos of her child on Facebook, and contextualised within other entries about her daily experiences of being a new mother. In another entry (above right), she discerns a change in her portrait, "Much more smiley, like me", a comment made sense of at the exit interview in conjunction with photos of her posted by her husband on Facebook.

Closing Discussion

In this Pictorial, we have described the process of designing a device, *Admixed Portrait*, as a field intervention to prompt daily critical reflection by new parents on how they create and manage online photographic portrayals of self and others mediated by Facebook use.

Our aim through this report is to contribute a case study and methodological account of using design as a practice-based form of inquiry, explicated in the creative processes of: framing a design space, empathetically responding to extant understandings of the subject matter that form the departure point for investigation; concept sketching; and developing a home appliance that serves its purpose to invite critical-reflective engagement in the field. In providing this account, we arguably build upon previous discussions in HCI and related literatures about how technology can be designed to provoke and invite reflection about felt life [6, 9] and the social, cultural and political nature of people's (including research participants', designers' and researchers') orientation to human-computer interaction [2, 3, 4, 7].

In our case, the critical-reflective nature of *Admixed Portrait* formed part of an empirical study design. Openness to subjective interpretation is inherent to the portrait because the amalgamated face provides a new perspective on its user's everyday interactions with their Facebook photos, which is arguably significant for inviting their critical reflection and sense making on the subject of our interests during the deployment and at interview. In the design process, we considered how aesthetic features shaped this intended engagement. By tethering the portrait-as-intervention to live Facebook data, the final device incorporates innovative functional features for sensitising its users to daily social media interactions as they take place in real time. And by producing alternative representations of self that are simultaneously responsive to Facebook activity, *Admixed Portrait* further sensitises its users to the potential of online algorithms to process people's social media data for shaping online portrayals or creating alternate, 'other' ones [8] - a potential that may be considered, in experiential terms, to be taking place unseen or obfuscated within everyday social media use.

Whilst herein we have focused on the process of designing a field intervention to contribute to a methodological discourse within HCI on design as practice-based inquiry, the related study design, procedure, analysis and results will be comprehensively reported in future work.

Acknowledgements

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