

Challenges and Opportunities for Designing with Biodata as Material

VASILIKI TSAKNAKI, Digital Design Department, IT University of Copenhagen, Denmark

TOM JENKINS, IT University of Copenhagen IxD Lab, Denmark

LAURENS BOER, IT University of Copenhagen IxD Lab, Denmark

SARAH HOMEWOOD, IT University of Copenhagen IxD Lab, Denmark

NOURA HOWELL, North Carolina State University Dept. of Communication, USA

PEDRO SANCHES, KTH Royal Institute of Technology, Sweden

This one-day workshop will bring together researchers working with biodata and design for discussing and reflecting upon how design and HCI operate with the body and its data. The main workshop objective will be to identify core challenges and opportunities in this domain. We intend to cohere the projects of the workshop participants into a set of artifacts, images, and theory to create an annotated portfolio that represents the state-of-the-art in designing with biodata in HCI. The workshop will be structured around four themes relating to the use and contexts of working with biodata: 1. Making sense of biodata by taking into account a holistic perspective of body, mind and emotions, as exemplified through soma design methods in HCI, for example; 2. Feminist perspectives of biodata that take into account bodily transitions, pluralities of bodies and temporalities of bodies; 3. Non-anthropocentric perspectives of working with and making sense of biodata, to also account for microorganisms and other material agencies in our bodies; and 4. Emerging domains, contexts, and practices around the use of biodata, such as health, affective, and performance contexts. The significance of the workshop is twofold: One, we will produce a group of researchers and practitioners that are working with biodata, aiming to unpack, discuss and respond to critical issues around designing with and for it. Two, we will create an annotated portfolio that can travel on its own as documentation and vision for future biodata-based design practices.

CCS Concepts: • **Human-centered computing** → **Interaction design theory, concepts and paradigms**.

Additional Key Words and Phrases: biodata, interaction design, biosensing, materials

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1 INTRODUCTION: DESIGNING WITH BIODATA

In the past decade, biodata has found many applications in HCI, mainly in healthcare [10]. A growing body of work has been focused on how to engage with biosensors in creative and designerly ways, exploring biodata as a "material" that can be designed with [8]. We use the term "biodata" to refer to information about the body in the broadest sense, including data about people's behaviors and claims to inferences about thoughts, feelings, or other characteristics. By exploring applications and forms of sensing on, with, and about the body, this data can be made accessible to the ideation stages of a design process. Touching, feeling and interacting with the material affordances of biodata is

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important for grounding design work in what is possible, but also for spurring novel ideas arising from the technology itself. Selected studies in this area include for example exploring sensing technologies through collaborations with dancers and choreographers [2], or surfacing and actively working with material properties of biosensors experienced as sensuous actuation [1, 7]. In this workshop, we want to bring together researchers working with biodata, and together identify core challenges and opportunities in this domain from a perspective that moves beyond a reductionist view on the body. We argue that as researchers and designers working with biosensing technologies we need to engage deeply and critically with the data our bodies produce [5]. Using technologies that sense the body in diverse ways, and harvesting data from bodily functions highlights the plurality of bodies [6], but also the uniqueness of each body and person being sensed, in relation to the context of use [4, 9]. We argue that factors including subjectivities and how bodies change and develop over time need to be taken into account when designing with and for biosensing technologies.

1.1 Anticipated Outcomes

We believe that there is a common thread between many people's work, but that these people are spread across different disciplines and geographical locations—one goal in the workshop would be to bring them all together. To that end, This workshop will assemble researchers working with biodata and design and will aim to identify core challenges and opportunities in this domain. In doing so, we hope to produce broader intermediate knowledge that can become a shared resource for designers in this space. Building on Gaver and Bower's concept of *annotated portfolio* [3], we intend to cohere the projects of participants from the workshop into a set of artifacts, images, theory, and annotation that represents the state-of-the art for those interested in doing design *with* and *for* sensing the body. In this way, the outcomes of the workshop will be twofold: One, we will produce a group of researchers and practitioners that are working in the domain, aiming to unpack, discuss and respond to critical issues around designing with biodata, not only during, but also after the workshop. And two, we will create an annotated portfolio that can travel on its own as documentation and vision for future biodata-based design practices. In the occasion that the NordiCHI'20 Conference and this workshop will need to take place virtually, we are prepared to adapt the workshop activities and expected outcomes, and aim for the creation of an online annotated portfolio.

2 OVERVIEW OF ACTIVITIES

This one-day workshop will consist of three phases. In the first one, attendees will present their own position paper in plenary style. This is to ensure that all present are familiar with one another's research and perspective, but also to start identifying common themes and critical questions in this area. In the second phase, the workshop activities will move towards developing the themes and annotations for the final outcome, the annotated portfolio. We will split participants into theme groups, in which they will work collaboratively to identify critical issues and annotate current state-of-the art for biodata-driven design research. Provisionally, but subject to change based on submissions and the work in the room, these themes aim to expand on four broad areas: 1) *Body holistic (soma)*, 2) *feminist*, 3) *more than human*, and 4) *health and affective* perspectives on designing with biodata. In the last phase we will reconvene to present the outcomes of the group work and assemble a common annotated portfolio.

The workshop would need space for approximately 25 attendees in a room, tables and chairs for attendees, a projector and a printer in close vicinity. Other materials, such as pinboards, pins, paper, scissors and glue, needed to develop annotations and images of research work we can supply ourselves.

Table 1. Planned workshop activities

Time	Activity
09:00 to 09:30	Welcome to the workshop, introduction from the organizers
09:30 to 10:30	First session of presenting position papers (first ½ of participants)
10:30 to 11:00	<i>Coffee Break</i>
11:00 to 12:00	Second session of presenting position papers (second ½ of participants)
12:00 to 13:00	<i>Lunch</i>
13:00 to 14:30	Annotated Portfolio Session 1: Workshopping themes in subgroups, developing material for portfolio
14:30 to 15:00	<i>Coffee Break</i>
15:00 to 16:30	Annotated Portfolio Session 2: Assembling the annotated portfolio
16:30 to 17:00	Discussion, reflection, next steps

3 DRAFT CALL FOR PARTICIPATION

The body has become a site for research in HCI and design—not just for medical or health purposes, but also for play, expression, and interpretation. A growing research strand in this direction focuses on designing with biodata. It is essential to reflect on how we understand our bodies and how we take them into account when we work with biosensing. Designing better experiences for end-users with biodata requires considering a plurality of bodies and somatic experiences. As a way to discuss and reflect upon how design and HCI operate with respect to the body and its data, this one-day workshop will gather researchers whose practice uses some form of data generated from the body as material, or inspiration. The workshop will be structured around four themes relating to different aspects of biodata:

- Making sense of biodata by taking into account a holistic perspective of body, mind, and emotions, as exemplified through soma design methods in HCI, for example
- Feminist perspectives of biodata that take into account bodily transitions, pluralities of bodies and differing temporalities of the body
- Non-anthropocentric perspectives of working with, and making sense of biodata, to also account for microorganisms and other material agencies in our bodies
- Health and affective contexts of working with data produced by bodies

This workshop will combine sharing and discussing design and reflective work that relates to biodata, and seek to generate intermediate knowledge by creating an annotated portfolio outlining the current state-of-the-art in this domain. Interested participants are invited to submit a short description of their work around biodata (2-4 pages). We welcome diverse documentation and exhibition formats including, text, images, websites, applications, or video, together with a brief motivation for what the participant hopes to achieve in the workshop. Successful applicants will be selected by their capacities to offer diverse theoretical ideas on the topic of designing and engaging with biodata, as well as their objects and systems that could drive an annotated portfolio.

4 PROMOTIONAL STRATEGY, RECRUITING AND SELECTING PARTICIPANTS

A website will advertise the workshop, communicate with accepted participants, and help disseminate the work pre- and post-workshop. Position papers will be submitted through the website and reviewed by the organizers. The audience for this workshop is HCI and design researchers and practitioners operating in contexts where the body and its produced data is central. To reach this audience, we intend to publicise this workshop across multiple HCI and design research

email lists, including CHI-ANNOUNCE, NordiCHI, PhD-Design, IxDA, and other regional listservs. Proposed work must involve design processes and products or critical and theoretical reflections, must either create or use biodata as part of design work or reflective accounts, and must support broader discussions about present and possible future applications and contexts for biodata.

5 ORGANIZER BIOS

Vasiliki Tsaknaki is an Assistant Professor at the Digital Design department, at the IT University of Copenhagen. Her research combines materials experiences, computational crafts and soma design methods in HCI.

Tom Jenkins is Assistant Professor of Digital Design in the IxD Lab at the IT University of Copenhagen. He uses RtD methods to produce speculative Internet of Things devices in community and domestic contexts.

Laurens Boer is Associate Professor of Digital Design in the IxD Lab at the IT University of Copenhagen. Using constructive design research, he investigates and speculates new forms and applications for computational materials.

Sarah Homewood is a Postdoctoral researcher in the IxD Lab at the IT University of Copenhagen. She uses RtD methods to explore how the design of self-tracking devices reflect cultural perspectives on the body.

Noura Howell is Assistant Professor in the Department of Communication at North Carolina State University. Her tangible embodied designs propose critical alternatives to overly rationalist ways of knowing with biodata.

Pedro Sanches is a Postdoctoral researcher at KTH Royal Institute of Technology in Stockholm. Bridging the fields of interaction design and critical data studies, he considers surveillance issues in the design of interactive applications.

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