

# Human-Data Interaction has two purposes: Personal Data Control and Life Information Exploration

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As a constructive critique of Human-Data Interaction, I outline an important distinction that HDI research and development must make as the field progresses. HDI has two different purposes. The first is Personal Data Control, needed to gain visibility over your data and agency within your digital world. The second is Life Information Exploration, which allows Personal Informatics-style reflection over a representation of one's life for self-improvement and personal benefit. These two purposes serve different human needs, bring different benefits, and lead to different designs and different applications of the HDI concepts of agency, negotiability and legibility.

CCS CONCEPTS • Human-centered computing • Human computer interaction (HCI) • HCI theory, concepts and models

**Additional Keywords and Phrases:** human-data interaction, HDI, personal information management, PIM, life information, information interaction, personal data, life interface, personal data control, digital life, data portability.

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## 1 ABOUT THE AUTHOR

I am a final year PhD, whose research topic is “Understanding and Designing Human Data Relations”. My research has included qualitative evaluations of participants' GDPR experiences, home visits exploring family attitudes to data, co-design of shared data interaction with care workers and supported families, prototyping of web augmentation as interface disruptor, and a placement at BBC R&D designing personal data store interfaces and life information models.

## 2 INTRODUCTION

HDI [17,18] originated from Weiser's vision [23] and the ubicomp vision of data environments beyond the machine [2], rethinking our relationship with computers [20]. Yet on a practical level it also advances the thinking of the PIM space [10], harnessing the information processing power of machines to organize and represent the world [8]. But PIM is not just about organizing one's own bookshelves; our data is scattered, trapped [1,6], exploited [26] and used as a proxy for our involvement [7], creating a power imbalance [25]. HDI must be considered in this wider context. HDI means something different when that data lives on corporate or governmental servers beyond our reach than it does when that data sits on our laptop or personal cloud. It is clear there are 2 distinct motives for HDI: **Personal Data Control** is necessitated by a need to maintain agency and autonomy [5] in a data-centric world [30]. **Life Information Exploration** is motivated by a desire to see ourselves represented in data so we may explore, reflect and gain insight on our lives in order to set and track new goals. The two approaches are shown from a user's perspective in Figure 1.

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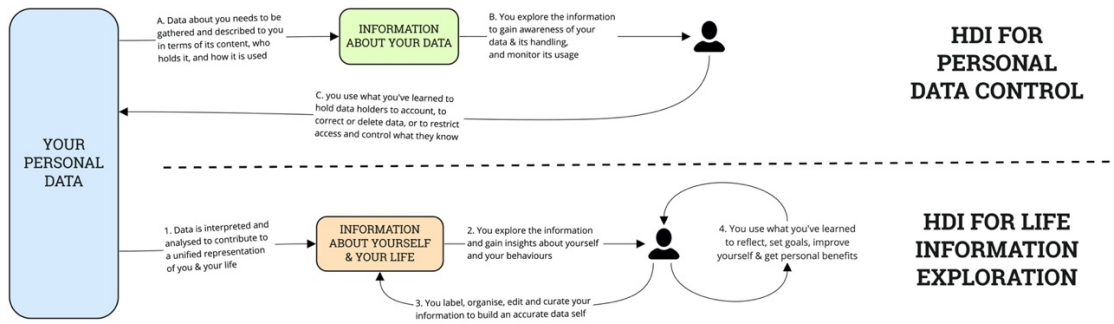


Figure 1: Two types of information can be obtained from personal data, providing two different types of personal value.

## 2.1 Personal Data Control

With its designed-to-hurt fines for non-compliance, the EU'S GDPR has finally begun to give people practical rights of data access and portability [3,13,14]. But from an HDI perspective, GDPR is not true data interaction, as you only gain access to a copy of your data. You cannot exert agency and negotiability if you are not able to influence the data self that is used to represent you and make decisions and you are not able to have a meaningful, and balanced dialogue with its holders. And even if you can receive a copy of your data, this access is not necessarily effective [9]. GDPR sometimes returns data (useful for portability and programmatic analysis) and sometimes information (which is understandable and resolves uncertainty [27]), but rarely both. Before Human Data Interaction, we need Human Information Interaction [11]– the ability to see and interact with a representation of the knowledge encoded in the data, not just the underlying numbers and tables. HDI for Personal Data Control will need to transparently [24] show you your digital life and allow you meaningful control over the data that drives it. Without this, any HDI interface cannot offer real-world agency.

## 2.2 Life Information Exploration

In their model of personal informatics systems, Li *et. al.* provide a powerful roadmap for *using* your personal data, rather than just viewing and managing it; *reflection* allows you to acquire insight [15]. It is clear that the next challenge for HDI is to extend this model to our whole life, so that we can collect all our personal information (not just our data, but the facts it expresses about ourselves and our worlds) in one place. We must move beyond files [4,16] and models that treat data as a static asset, and instead construct a fluid and updating representation of our digital selves, which we can interrogate, explore, curate and use for our own ends, whatever they may be. Personal data lockers [19,21,22] offer a blueprint for how a general purpose HDI interface might be achieved so that we may finally have “a place for our personal information” [10], as emergent platforms such as digi.me [28] and ethi [29] give us a glimpse of. By growing and developing this vision, we could acquire negotiability and legibility not just over our data, but within our own lives.

## 3 CONCLUSION

In this paper I have outlined two distinct missions for the future of HDI. Central to both is the idea that we are not only designing for interaction with data, but also for interaction with two distinct, unified [12] and rich informational representations: of our place in the data-centric world we inhabit (2.1) and of our own selves, brought to life in data (2.2) – as Fig. 1 explains. The biggest challenges that lie ahead for HDI are to allow for interaction with both data we hold *and* data that others hold for or about us; and to support two types of interaction relationship – one with the raw, physical data files and records that exist about us, and another with the curated personal information our data reveals.

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For a larger version of Figure 1, see <http://bit.ly/two-purposes-of-hdi-fig-1>