CARE-HCI: An Interactive Visualisation for Relationally Exploring Literature

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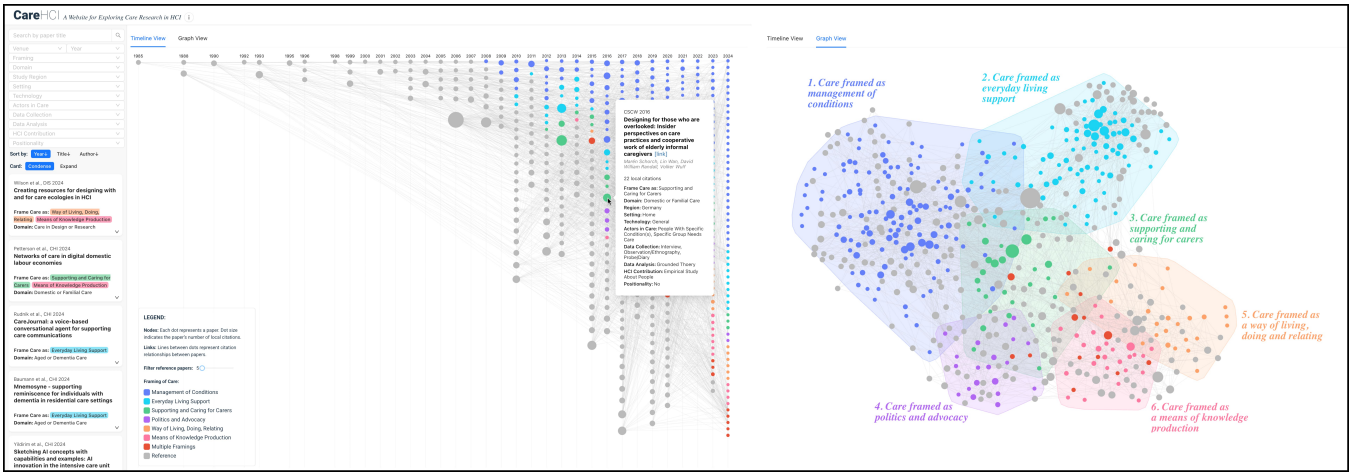


Figure 1: An overview of CARE-HCI.

Abstract

We present CARE-HCI, an interactive visualisation tool built to support literature exploration, stemming from the needs during our own review process. By integrating paper data and citation relationships with timeline and graph-based overviews, it offers researchers an intuitive way to visually navigate and make sense of a body of literature. At NordiCHI, attendees will be invited to explore two roles of the tool. First, its communicative role post-publication, demonstrated by the website from our prior literature review. Second, its analytical role during the review process, demonstrated via a tailored version where attendees can position NordiCHI proceedings on a shared canvas and shape a collaborative understanding of the field. Through this hands-on experience, we aim to spark conversations about the sense-making process during literature reviews, the communication and maintenance after review publication, and to explore the broader potential of tools supporting ongoing, collaborative approaches to synthesising research.

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CCS Concepts

• **Human-centered computing** → **Visualization systems and tools**;

Keywords

Literature Review, Data Visualisation, Research Tools, Conference Interaction, Care

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1 Introduction

Visual methods, such as affinity diagramming and visual mapping, offer a distinctive way for designers' and HCI researchers' qualitative sense-making [2, 4]. When applied to literature reviews, they enable richer and more relational forms of analysis and presentation (e.g., [1, 5]). However, these practices remain largely unformalised and poorly supported. Researchers typically resort to general-purpose whiteboard tools, such as Miro, to manually enter literature data and citation relationships. As the volume of publications continues to expand, such manual synthesis becomes increasingly laborious, time-consuming, and difficult to scale.

We developed CARE-HCI[1] (https://care-hci.org) to support our own effort of synthesising and presenting over 300 HCI papers on care in a previous review [5]. Grounded in first-hand research needs and an autobiographic design approach [3], we identified key functional requirements, built the system, and iteratively refined it through sustained self-use. Through this process, we also recognised its potential as both a communicative and an analytical tool for the wider HCI community.

2 CARE-HCI: Literature Exploration Through Visualisation & Interaction

CARE-HCI is an application that allows people to explore the literature of a field through interactive, visual ways.

The system consists of a React-based front-end and a general bibliographic data processing library [6]. The front-end, based on D3.js, accepts JSON-formatted bibliographic data and custom cluster labels and attributes. The library automatically integrates paper metadata with citation relations from the OpenAlex API[2] and various custom data sources (e.g., XLSX or CSV exports), and transforms the data into specified JSON format. This generalisability enables users to readily update the literature data source with new publications or topics they wish to explore.

User Interface. As illustrated in Figure 1, the user interface comprises two main parts. On the left, the filter and literature panel allows users to search, refine, and browse the papers included in the review. On the right, two complementary views: a timeline view and a graph view, present the literature visually, with each node representing a paper. Clicking a node reveals its citation relationships by displaying connecting lines to related papers. Hovering over a node displays a tooltip with paper information. Together, these features enable users to quickly grasp the connections and evolution of the literature and to explore it in a relational way.

Demo Design. Using care as an example topic, this demo presents two roles of the tool for NordiCHI audience. First, its communicative role after a review, helps readers explore a field and navigate a published review, demonstrated via our website (https://care-hci.org). This also supports our goal of maintaining the review and receiving audience feedback. Second, its analytical role during the review process, which operates as the "backstage" of the website, will be demonstrated through a bespoke version tailored for this audience.

Using the same data pipeline, we will prepare a sample dataset of NordiCHI proceedings, and pre-load it as cards in the left panel of the interface. On the right, attendees can explore and modify the position and grouping of the papers according to their understandings. The system will track how positions evolve over time as multiple users contribute, thereby co-shaping the final representation of the field. Through this, our demo offers a novel way for collaborative, relational sense-making of the literature in a field.

By demonstrating both versions of the tool, we aim to foster discussion around the stewardship and long-term maintenance of literature reviews, as well as the value of tools for supporting literature exploration and review presentation more broadly.

[1]The name reflects both its origin: a review on care in HCI, and its potential as a **ca**nvas for **r**elationally **e**xploring literature. We use care as an example in our demo, but it could apply to any other topics of interest for review.
[2]https://developers.openalex.org

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