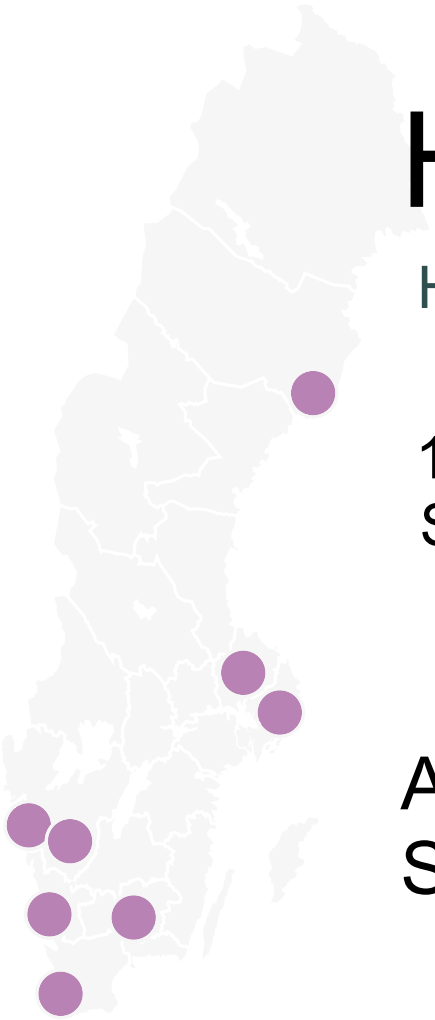

HiC 2025

Huminfra Conference

12–13 November, 2025
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Abstract Submissions

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Digital technology self-efficacy, cyber security and digitalisation anxiety-mediating role of AI attitude in mental health app users from a developing country

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Abstract

Psychological applications and telehealth as mental health intervention within the Global South, from Pakistan, are integral to be studied in medical anthropology. There is distrust in Pakistani culture to put faith into mental health counselling applications [Humraaz, mPareshan, Taskeen, Ruhbaru,SehatYab, etc]. As collectivists, mental health patients rather resort to family and relatives for advice rather than opting for professional help. Lack of information security regarding mental health may indicate fear of losing job, respect in family and weaker image in education prospects

Methods: A cross-sectional, correlational, quantitative study was designed using purposive sampling from four provinces of Pakistan, resulting in a sample of 420 adults. STROBE list guidelines were opted. Valid and reliable instruments of Digital Technology Self-Efficacy [Ulfert-Blank & Schmidt, 2022], Cyber Security [Arpaci, 2022], Digitalisation Anxiety [Pfaffinger et al., 2021], and AI attitude [Grassini, 2023] are used and quantified using IBM SPSS v28.

Results: Normality tests were run. Pearson correlation suggests moderate significance. Regression analysis shows that cybersecurity concerns and digitalisation anxiety negatively affect the use of mental health applications due to suppressed digital efficacy. Moderation analysis with Hayes Process Macro shows that AI attitude mediates between digital self-efficacy and digital anxiety. Multivariate analysis of variance shows that level of education has a main impact on four constructs.

Implications: Mental illness treatment, prevention and healing can be managed by bridging technological and cultural gaps to embrace secured digitisation for mental health that ensures psychological safety in complex eastern culture, where low level of education remains a significant issue. Moreover, the Pakistani infrastructure requires digital and experimental support that can be cross-culturally be learnt from the Huminfra 2025 initiative

Keywords
AI, mental health, digitalization

Exploring LUCRIS: AI-Powered Research Querying

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Abstract

Extensive research is conducted at Lund University, and information concerning research activities, researchers, and research groups is managed within a system known as LUCRIS. This information is made publicly accessible through Lund University's Research Portal.

This project investigates the possibilities of querying and searching the research database by integrating multiple retrieval techniques with answer generation based on large language models (LLMs).

We outline the full pipeline from raw LUCRIS data to the construction of the word and vector databases employed in the retrieval system. The database is harvested using Go-based code that produces JSONL files, which are subsequently processed in Rust. The retrieval-augmented generation (RAG) query system is implemented in Python. Due to the requirement that all data remain local, no information is stored or processed in cloud-based services. Instead, the system operates on a local server and employs freely available models through Ollama.

Keywords

AI, Large Language Models, Semantic Search, Retrieval Augmented Generation

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AI and Multilingualism in Education

Coppélie Cocq and Carla Jonsson

Generative AI tools for translating, proofreading, and improving writing are easily accessible, user-friendly, and integrated into many programs and platforms we use in our daily lives. Among other things, they enable us to access information and communicate across language barriers. They can also be seen as a shortcut, and can give rise to discussions about what constitutes "cheating" versus justified assistance. AI represents many opportunities in education, but also challenges and potential risks, such as ethical challenges. Teachers need to be aware of the possibilities and limitations of AI and to take pedagogical responsibility for its use in education.

In this talk, we will present a work-in-progress (pilot study) that investigates uses of and perspectives on AI in language higher education. According to a critical perspective on multilingualism, students' accumulated linguistic repertoires (Busch, 2012) are considered as resources that can be used to support their language development in education. Therefore, our research has a particular interest in how multilingual perspectives on education can be supported/encouraged through AI. Through focus group interviews, with students and teachers, we investigate how AI tools are perceived and used from a multilingual perspective, e.g., with regard to possible power relations and hierarchies between languages.
Our purpose is (1) to investigate digital practices with AI used in (language) education by teachers and students. This includes the study of professional teacher identity as well as the students' roles in relation to teachers, other students and the learning process and (2) to explore opportunities and perceived limitations/challenges/risks of AI in (language) education. Here, we want to investigate the critical and ethical dimensions of the use and application of Gen AI technologies for language learning.

The overall aim of the study is to generate knowledge about digital practices with AI in education and learning, with a focus on language education with multilingual perspectives.

Small-scale projects as a research strategy

Coppélie Cocq and Svensson Jon

This poster will present how Humlab has granted, assisted and conducted pilot projects in Digital and Experimental Humanities. In the course of 2024 and 2025, 10 collaborative small-scale projects were conducted between Humlab's experts, and researchers and teachers at the Faculty of Arts and Humanities. The projects included disciplines such as creative studies, religious studies, media studies and pedagogy.

Within the framework of the pilot projects, researchers have had the opportunity to collaborate with Humlab's developers for up to 40 hours. This form of collaboration has provided researchers with access to Humlab's technical infrastructure, such as powerful computational resources as well as expertise in a wide range of areas such as text analysis, motion capture, data collection, web scraping, geographic information systems, and game environments for research and teaching.

The pilot project initiative has a twofold aim. First, it is a means for supporting researchers and teachers willing to develop or strengthen their knowledge in digital methods. Second, it is a way to develop new collaborations and, in a long-term, to develop research projects with scholars in various disciplines at our faculty.

Such small-scale projects also benefit Humlab as they fostered skills growth among developers by enabling time for exploration and experimentation of new methods and techniques. Engaging with projects that pose new questions, tackle emerging challenges, apply innovative methods, and explore novel data types - particularly in relation to AI and motion capture - has helped build transferable expertise for future initiatives.

Our poster will showcase a selection of pilot projects in the context of our strategy for developing and supporting research and teaching in digital and experimental humanities.

Can I Get Credit for My Dataset? How to Automatically Archive your GitHub Repositories in Zenodo

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Abstract
(abstract submission)

Keywords
open science, publication practices, academic accreditation, long-term preservation

In today's technological landscape, our range of scholarly output is no longer confined to traditional academic publication formats like monographs and journal articles. Increasingly, scholars are creating digital objects for research purposes: algorithms, Jupyter Notebooks, curated datasets, etc. Often, publishing such resources in open source is crucial for the accountability and reproducibility of our research. But where do we publish them, to ensure their easy open access and sustainable long-term preservation? And how do we get credit for all the time and effort that was spent developing these valuable resources?

Academics and digital library staff will often turn to GitHub for this, and with good reason. Widely supported by the community, GitHub boasts built-in version control, tools to enhance collaborative development workflows, permalinks to individual lines of code, in any version of the repository — and more. But, as a subsidiary of Microsoft, free access to hosted repositories is not a given in the long term. Instead, Zenodo may be a safer choice, as an open science-first research repository organised by CERN and OpenAire, built for long-term preservation. Unlike GitHub, Zenodo also automatically gives its repositories free DOIs, thus enabling improved citation and options to register them in DiVA, ORCID, and the like.

Thankfully, Zenodo supports GitHub integration. This way, every new release of a GitHub repository can be archived in Zenodo, each with their own individual DOI (and an umbrella DOI for the repository as a whole). Setting this up is relatively straightforward, but not widely adopted. Furthermore, documentation on how to optimise your Zenodo deposit's metadata in the process is also severely lacking. In this demonstration, I will share my workflow for drafting and archiving releases for repositories deposited in the Swedish School of Library and Information Science's GitHub organisation.

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QualNotes: Digitising Qualitative Data Collection Methods in the Social Sciences and Humanities

Danielle Drozdzewski, Department of Human Geography, Stockholm University

Abstract

In this presentation I introduce QualNotes, the first mobile application designed specifically for qualitative data collection. I explain and demonstrate not only what QualNotes does, but also why and how it was developed too. Foregrounding the collaborative and cross-disciplinarity of the App's development highlights the practical necessity of rethinking and redesigning research tools for the digital age, but also to address our own immediate problem – the lack of an App for qualitative data collection.

The embedded expertise of the co-founders (human geographer and computer scientist) was pivotal in designing the App to collect, collaborate, and coordinate qualitative data by using a device researchers, educators, and students already carry—their smartphone. QualNotes combines secure ethics, project management features, and real-time collaboration with three qualitative methods: mobile mapping, guided interviews (including interview schedules), and participant observation.

As an innovative digital tool, QualNotes addresses two key challenges: digital transformation and cross-disciplinary collaboration. First, QualNotes promotes a shift in how social science and humanities research is conducted and taught, pushing us toward incorporating digital tools. QualNotes challenges traditional pedagogies that still preference methods textbooks and "how-to" classroom-based styles of instruction, including physical materials like notebooks, cameras, and voice recorders, to teach and conduct methods, but leave little room for innovation by excluding digital and mobile tools.

Second, QualNotes advocates for collaboration and cross-disciplinary work; its development reflects an important trend in academia—the necessity for collaboration across disciplines to innovate teaching and research methodologies. Collaboration facilitates forward-thinking and the embrace of digital tools to enhance research/teaching practices by encouraging us to think outside of our disciplinary silos. Yet, working across disciplines, and especially from social sciences, requires steep learning curves of the technologies involved. We need to advocate for better spaces to develop and value these collaborations, across our diverse academies.

Operationalising legal and ethical clearance: Evaluating the legality of research corpora with Gädda

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Abstract

This demo paper introduces Gädda, a general framework for matching of paired sets of criteria, and the specific implementation of it used to support legally and ethically defensible adoption of speech-related corpora. Research infrastructures that handle human data must navigate a difficult landscape: European and national regulations, institutional practices, and ethical review procedures often overlap but rarely align, and they are not designed with long-term, reusable research corpora in mind. For speech-oriented science in particular, this creates uncertainty at every stage: from whether a corpus can be stored at all, to how it may be shared and reused. Gädda addresses this by allowing us to separate legal and ethical assessment from the technical adoption process, providing a decision layer that enables consistent, traceable, and defensible handling of corpora.

We implement a structured compatibility check between sensitivity levels and technical–organisational measures (TOMs). Sensitivity levels capture the degree of legal or ethical risk associated with a corpus (e.g. personal, sensitive, or high-risk data), while TOMs describe the safeguards available in the infrastructure (e.g. access controls, encryption, anonymisation). If a corpus exceeds the TOM capacity, adoption cannot proceed; if it is within capacity, it enters the standard technical pipeline, where all corpora are treated uniformly. Unknown cases default to the most restrictive classification, ensuring that clearance errs on the side of caution. Gädda is designed to support compatibility of different sets of criteria, and our data adoption implementation is highly compatible with the SEMLA model developed at DFKI, while adapting it to Swedish legal and institutional conditions.

In the demo, we present Gädda's design principles, its data model, and its implementation as a lightweight, inspectable tool integrated with the Språkbanken Tal adoption workflow. We show how Gädda provides actionable clearance decisions, how it interfaces with registries and provenance tracking, and how it supports interoperability with other European frameworks. For HumInfra and the wider digital humanities, Gädda demonstrates how legality and ethics can be operationalised in infrastructure without stalling technical progress.

Keywords

Speech corpora, speech resources, speech-oriented science, legal and ethical concerns

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The Group perception lab: Audience Response Systems as multimodal research infrastructure

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Abstract

This demo paper presents the Group Perception Lab at KTH Royal Institute of Technology, part of the KTH Interaction & Robotics Labs and closely connected to Språkbanken Tal. The lab provides a specialised environment for audience response systems (ARS) and other collective, multimodal forms of interaction and experimentation. Audience response systems are increasingly important tools in both research and practice, supporting interactive teaching, large-scale data collection, and experiments on group dynamics. However, their design and evaluation require infrastructures that can capture, synchronise, and analyse behaviour across entire groups of participants.

In this demo, we offer on-site engagement at KTH, where participants can explore the fixed installation of the Group Perception Lab, as well as a portable setup suitable for conferences, showing how lightweight ARS experiments can be conducted in less controlled environments using mobile sensors, portable displays, and speech-based interfaces.

For HumInfra and the wider digital humanities community, the Group Perception Lab demonstrates how ARS can be treated not only as pedagogical or experimental tools but also as data sources—bridging interactive research design, multimodal corpus development, and long-term infrastructural support.

Keywords

Perception, experimentation, audience response systems

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Visualised incremental modelling of multi-party collaborative ranking task conversations

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Abstract

This demo paper presents a dialogue model and visualisation tool for analysing consensus formation in collaborative multiparty meetings. While many dialogue models focus on turn-taking, topic tracking, or speaker roles, our approach is tailored to task-oriented conversations where groups work toward a joint decision. Our test case is ranking tasks such as the NASA Moon Survival exercise, where participants must reach consensus on prioritising items critical for survival.

The model is incremental: at any moment in the dialogue, it maintains a best guess of the group's current consensus. This allows us to track how agreement emerges, stabilises, or shifts over time, and to analyse the interactional dynamics that shape the outcome. Rather than treating dialogue as a sequence of isolated turns, the model represents the evolving state of shared understanding, grounded in task relevance. This focus enables fine-grained analysis of how contributions are taken up, resisted, or revised in the collaborative process.

To make these dynamics visible, we have developed a replay and visualisation tool. The tool allows users to replay a recorded meeting while simultaneously displaying the model's evolving estimate of consensus. As the conversation unfolds, the tool showcases moments of convergence, divergence, and revision, providing an intuitive view of how collective decisions take shape. This opens up new opportunities for teaching, analysis, and reflection on collaborative dialogue.

The demo will show the system applied to multiparty meeting data, illustrating both the incremental model and the visualisation. For researchers in dialogue modelling, interaction analysis, or digital humanities, the contribution is twofold: (1) a modelling approach that foregrounds consensus as a dynamic and measurable property of conversation, and (2) an interactive tool that makes this process accessible to researchers, students, and practitioners.

Keywords

Meetings, dialogue modelling , collaborative tasks, visualisation

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Teaching GIS to Humanists: A Survey of Online Educational Resources

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Abstract

Outside certain domains within the humanities (e.g. archaeology, spatial history) the application of Geographic Information Systems (GIS) remains relatively uncommon. There are several reasons for this. The complexity of GIS systems themselves entails a steep learning-curve along with requiring familiarity with sophisticated technical systems and data formats, setting a high threshold for scholars and students in non-technical fields. Moreover, despite notable exceptions, much humanistic inquiry is not inherently predisposed to engage with spatiality in the literal manner demanded by GIS, lacking a justification to engage with a technology requiring such a large upfront investment. Some [1,2] have gone so far as to describe mapping and GIS as fundamentally at odds within humanistic epistemology ad practices, despite its enormous potential.

Faced with these concerns and tasked with developing an open educational resource (OER) introducing GIS to humanists, the authors undertook an exploration of comparable OERs. The current paper reports how GIS is introduced to humanities-based scholars and enthusiasts through various learning resources platforms: *The Programming Historian* (17 OERs), *Dariah Campus* (5), Esri's *GIS for Humanities* (6), and *DariahTeach* (2). The purpose of the survey is to understand how the technology and methods of GIS are presented to primarily humanistically-based learners. The OERs are subjected to a content analysis along three distinct dimensions:

- **Audience**: What do the OERs assume about their audiences (motivations, backgrounds, desired outcomes, skillsets)?
- **Method**: How are GIS framed (utility, use-cases, affordances, accessibility)?
- **Instruction**: What conceptual and technical elements are covered (procedures, functionalities, workflows, resources)?

By analysing these aspects of the OERs sampled and using our own OER in development to highlight the insights gleaned, the paper hopes to present a clearer understanding of OER development and instruction more generally within the humanities with respect to more complex and esoteric digital methods.

Keywords

geographic information systems, open educational resources, survey

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Evaluating the Feasibility of Handwritten Text Recognition for Historic Maps

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Abstract

Textual elements are important features of any map, yet computational identification of words and characters – namely optical character recognition (OCR) - can be challenging given the non-textual features, different textual orientations, overlayed elements, and other complicating aspects of maps. Despite these OCR has been explored for printed maps with typeface text. But little work is currently undertaken applying handwritten text recognition (HTR) on non-printed, handwritten maps. Several openly available HTR tools – such as Transkribus or HTR Flow – are able to capture text from manually written documents, but these tools are usually applied to predominantly textual documents (e.g., letters, manuscripts, diaries). There is little insight into their efficacy regarding cartographic documents.

This on-going project explores the feasibility of current artificial intelligence models for HTR on the historical maps of Danish cartographer Johannes Mejer (1606-1674). Besides learning the capacities of current technologies in this type of media, digitalization of Mejer's collection can offer insights into a crucial period in Nordic history, preceding the Swedish acquisition of Skåne, which Mejer was the first to chart during this time. Several machine learning applications for HTR – specialized systems such as Transkribus and HTR Flow, as well as general large language models such as OpenAI's GPT-5 and Claude Sonnet 4 – are trained and tested.

After outlining the problem and the methods, including the preparation of AI training/testing material, this presentation reports the findings regarding the performance of currently available machine learning models. Following this, we propose subsequent steps for improved output. We also share preliminary historical insights gleaned from the processing on the Mejer's works, as well as the overall challenge of applying HTR machine learning for difficult material such as historical maps. In so doing, the project hopes to encourage exploration of machine learning applications with unconventional material with textual elements.

Keywords

handwritten text recognition, historic maps, Johannes Mejer, machine learning

Using text-to-speech synthesis as an analysis-by-synthesis tool for speech research

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Abstract

Current text-to-speech synthesis based on deep neural networks can generate human-like speech of exceedingly high quality. While these deep-learned speech models are generally very successful, they do not allow us to have much control over the resulting speech and therefore provide us with little opportunity for gaining insights into how the models handle speech features and characteristics of interest for speech research. If, on the other hand, we are able to modify the input to the models by altering or augmenting the annotation of the training data, we can then analyze the synthesis output to better understand how the models handle the features that we have chosen to investigate. We will here present results involving two different types of speech features which we have investigated, namely prosodic prominence and allophonic segmental variation.

Prosodic prominence is a complex phenomenon often involving acoustic features such as duration, intensity and fundamental frequency. We have experimented with using duration alone as a proxy for prominence. By annotating duration in the training data we were able to nudge duration in a particular direction and thereby obtain a certain control over prominence. Since duration was acting as a proxy for prominence, duration nudging brought with it concomitant changes in other acoustic dimensions. The experiment tested Swedish verb particles contrasted to prepositions (e.g. *köra* ***på*** vs. ***köra*** *på*) and numerals contrasted to indefinite articles (e.g. *fyller* ***ett*** vs. *ett* ***rum***). Both acoustic difference measures and listener preference scores showed that the level of prominence was achieved in the appropriate context.

The segmental speech variation that we have investigated included lowered allophonic variants of short and long /ɛ/ and /ø/ before /r/, aspirated /p, t, k/, and variants of /r/. We achieved a higher level of control for the variation in /ɛ/ and /ø/ than for the other phonemes indicating a more robust context dependency for this variation. This type of analysis-by-synthesis can serve as a tool to investigate wider questions in speech research, and the method can be adapted for use in other disciplines in the humanities.

Keywords

Analysis-by-synthesis, neural TTS, prosodic prominence, phonetic and phonological features

Revisiting the CiCUW Project Workflow: All the things that went wrong in a year

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Abstract

In Sweden, the growing influence of the far-right has turned cultural institutions into contested political symbols within an emerging "culture war," where digital forums and social media play a central role in fueling conflicts and threats that challenge these institutions' democratic mission ([1], [2]). Despite this, there is limited knowledge about how such digitally mediated threats develop and how online discourse relates to offline events [3]. The Cultural Institutions and the Culture War (CiCuW) project addresses this gap by examining far-right online discourse about libraries and museums to better understand its potential connections to real-world confrontations, building on insights from a prior pilot study of far-right news sources [4]. Presented at HiC 2024, the initial workflow for the pilot consisted of a shareable KNIME workflow which integrated resources via multiple different extensions, and which would go on to form the basis of a chapter in the upcoming Huminfra Handbook on web scraping and text mining.

However, as the project progressed beyond the initial pilot phase, the workflow changed drastically. Encountering issues with resource compatibility, expanded demands from the inclusion of new data sources, and the rapid development of Swedish-context resources, the project turned into an exploration of the limitations brought on by the use of low-code tools beyond simply contributing to closed-box methodologies [5]. The proposed project will map the changes in the workflow from the pilot study to the current iteration of the project and contextualize those changes in the developing Swedish digital landscape in order to provide a further reflection on the uses and limitations of low-code tools as an introduction to digital methods for humanists based on previous examples [6].

Keywords

cultural institutions, culture war, libraries, text mining, topic modelling, sentiment analysis

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Riksdagsdebatter.se - a digital humanities tool for exploring Swedish parliamentary debates

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Abstract

Riksdagsdebatter.se is an interface for user-friendly access to digitized Swedish parliamentary debates, a valuable resource for research within digital humanities, as well as political science, history and other disciplines. Riksdagdebatter.se provides tools for searching and analyzing the content of a corpus of over one million speeches from the Swedish parliament from 1867 on onward curated and annotated with metadata by the project SWERIK.[1]

Currently, the tools *Keyword in context* and *N-grams*, both based on corpus workbench,[2] allows the user to study search terms and phrases in context, while *Word trends* displays the usage of terms over time. Riksdagsdebatter.se has been purposefully tailored to the domain of parliamentary records, with search and filter options selected based on the specific characteristics of this data set, making it possible to filter the speeches based on properties such as gender, party affiliation and time period to create and download *subcorpora*. Further, it is possible to read the OCRed speeches in full, view the printed protocols as pdf:s and obtain more information about individual speakers.

Riksdagsdebatter.se consists of a frontend paired with backend services, both openly available through GitHub,[3] and has been designed in cooperation between developers and researchers with the intention to balance diverse use-cases and ease of use for researchers and others, such as journalists and students.

Both additional tools and datasets can be added to the interface. Examples are tools for text analysis, such as topic modeling, and further data sources from the parliament including private member's motions (motioner). This work is ongoing with continued improvements of available tools and search functionality as well as user experience.

Keywords

Digital humanities tools, Parliamentary debates, User interface

Acknowledgments

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[1]https://swerik-project.github.io
[2]https://cwb.sourceforge.io
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What Can We Expect from Archival HTR Models? A Critical Appraisal of Swedish Lion

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Abstract

Handwritten Text Recognition (HTR) models are developed for different purposes, and their usefulness depends on the context of creation. Individual scholars may design models to access specific archival series, whereas cultural heritage institutions typically aim to produce models applicable across broad and heterogeneous collections. Yet the selection of training data is often determined less by deliberate design than by resources, funding, and available expertise. Projects may rely on citizen-science initiatives such as *Europeana Transcribe*, or on volunteers, students, and other forms of low-cost labour. Text editions produced in academic research projects may also be repurposed for HTR if openly available. As very few institutions can sustain a dedicated staff of transcribers, training data usually emerges from a patchwork of projects following divergent transcription guidelines. Under these circumstances, continuous appraisal and evaluation of models becomes essential.

One such example is *Swedish Lion*, an HTR model coordinated by the Swedish National Archives and developed from multiple projects and data sources. This paper has two aims. First, it offers a qualitative appraisal of Swedish Lion by examining its training data (Ground Truth) in terms of language domains (judicial, ecclesiastical, military), target audiences (public versus private texts), and chirography (drafts versus fair copies; cursive versus formal handwriting). It further assesses performance on (1) in-domain material, (2) out-of-domain material, and (3) quality prediction in a production setting, combining qualitative observations with statistical and visual analyses. Particular attention is paid to the types of errors produced – whether arising from natural variation in non-standardised handwriting (e.g. case distinctions, punctuation, special characters) or from errors with greater interpretative impact, such as misspellings, incomprehensible words, or hallucinations. Secondly, the article reflects on what may reasonably be expected of HTR models developed within archival institutions and proposes directions for future performance assessment.

Keywords

Handwritten Text Recognition, Ground Truth, Validation

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Arkindex: An Open-Source Infrastructure for AI-Based

Processing of Cultural Heritage Collections

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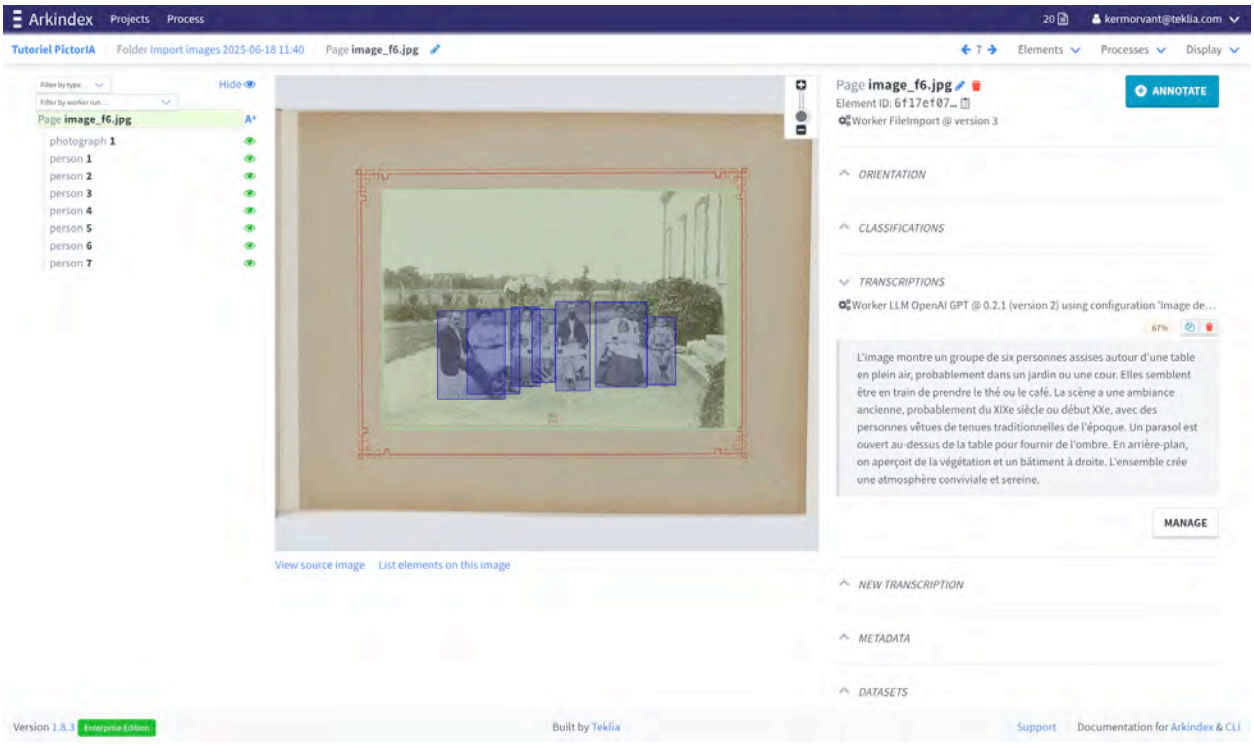

The open-source platform Arkindex, developed by TEKLIA, enables the design and automation of large-scale document processing workflows for cultural heritage collections. It combines deep learning algorithms, manual interventions and the integration of existing metadata into reproducible pipelines. Designed to operate at the scale of millions of pages, Arkindex is natively built upon the IIIF image protocol, and orchestrates complex workflows of open-source or proprietary algorithms including OCR/HTR, object detection, classification, and entity extraction, while ensuring full traceability and reproducibility of results.

This communication outlines three key aspects of infrastructure design for digital humanities and cultural heritage that have been incorporated into Arkindex.

The first is generic document modelling, which defines flexible data structures that can accommodate the heterogeneity of archival and cultural sources, while remaining

compatible with AI-based processing. The second aspect is a comparison between extractive and generative AI approaches applied to historical document processing. Extractive approaches decompose the processing into specialised sub-tasks, whereas generative approaches aim to produce structured outputs directly from raw documents. Arkindex integrates both paradigms, enabling transparent and reproducible extractive workflows, and incorporating large language models for generative processing. The third aspect is workflow management, which ensures exhaustive, high-quality processing and allows the combination of AI modules and human validation for data validation. It also documents each step for transparency and reproducibility, handles error recovery and quality control, and produces customised outputs in standard, interoperable formats such as ALTO, IIIF, PDF and JSON.

By addressing these challenges, Arkindex contributes to the sustainability, transparency, and interoperability of AI-based document processing infrastructures. It enables libraries, archives and museums to integrate artificial intelligence into their practices while maintaining scientific accountability and openness.

E-motion: Binary systems versus Fluid Identities

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Abstract

AI systems often classify data into categories based on patterns learned from labeled training datasets. These systems, such as facial analysis, have been shown to make cisgendered, white supremacist, and ableist assumptions in categorizing bodies into data where stereotypical norms and colonial power relations are reproduced (e.g Buolamwini et al., 2018; Benjamin 2019; Shew 2023). AI's labelling of data reduces identities into fixed and binary (op)positions which have been long destabilized by queer theory scholars. While Judith Butler (1990) coined "performativity" that points gender and sexuality as ongoing performances, Jasbir Puar (2020) argued for identification as an affective "event" rather than a label.

In this study, we explore how AI datasets, with a particular focus on Motion Capture (MoCap) system, can be created through co-creative methods in a bottom-up dynamic. Grounded in queer theory, we examine how performativity and eventness of identity can be expressed and represented in data, by challenging the static and normative categories often embedded in traditional AI systems and seeing identification as an affective process.

Drawing on participatory design and feminist ethnography, we will bring two methods together; focus group interviews with queer individuals and a MoCap workshop with actors. In this presentation, we will outline our data collection process using exploratory, participatory methods. First, we will share our plans for focus group interviews as a bottom-up participatory process for designing and evaluating MoCap workshop. Then, we will share insights from our preliminary MoCap workshop design, including reflections from a pilot recording with actors.

Keywords

Motion capture, participatory design, queer theory, identification, binary systems, focus groups

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Signals from the Field: A Survey of Digital Practices and Needs in Sweden

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Abstract

One of the main aims of Huminfra for the period 2025–2028 is to identify the research needs and tools that can guide the future work of both Huminfra and DARIAH Sweden (DARIAH-SE). To support this goal, the Huminfra node at Linnaeus University (LnU) has led an online survey to map needs for tools, training, and resources among researchers across Sweden, as well as within cultural heritage communities. In this work, we outline the rationale, objectives, methodology, and initial results of the survey.

To ensure comparability within the European context, the survey design follows earlier initiatives by the DARIAH Digital Methods and Practices Observatory (DiMPO), published in 2022.[1] The survey addresses four key themes: respondents' current use of tools and resources; unmet needs and limitations; training requirements and preferred formats; as well as preferred channels of communication. By combining closed and open-ended questions, it captures both quantifiable data and detailed accounts of specific challenges. Also, to support research data re-use, the closed-ended responses will be published as an open dataset upon completion of the survey.

The survey outcomes include an overview of digital practices and needs among humanities researchers and cultural heritage stakeholders in Sweden. These findings are aimed to inform Huminfra and DARIAH-SE future relevant goals, enhance support for digital scholarship, and design training opportunities tailored to community needs. More broadly, the study contributes to European efforts to map and understand the evolving digital landscape in the arts and humanities. Initial results proposed for presentation at the conference comprise 201 responses from 31 institutions.

Keywords

Digital practices and needs, Survey, Huminfra, DARIAH.

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GIS-based 3D spatial analysis: novel methods for assessing visual experience in virtually reconstructed historical spaces

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Abstract

Studying ancient spaces is a complex task, largely because of the fragmentary nature of the available evidence and the profound cultural differences that shaped those environments. Virtual Reality (VR) offers valuable opportunities to reconstruct immersive scenarios that approximate the original settings. By integrating biometric sensors, such as VR-based eye tracking, researchers can now measure user experiences as they move through and observe the architectural and decorative elements of these reconstructed spaces. A key challenge, however, remains: how can we integrate diverse datasets—such as gaze patterns and fixation points—into cumulative maps that help us infer how people in the past may have interacted with ancient spaces? In this paper, we propose a 3D GIS-based analytical approach for importing and examining eye-tracking data from a spatial and quantitative perspective. This method allows us to experimentally test hypotheses about the original functions of selected rooms within a reconstructed Pompeian house.

Keywords

Virtual Reality, 3D GIS, Eye-Tracking

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Documenting on the move – action cameras and techniques for field work

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Abstract

Video is one of the primary data sources for studying human language behaviour, and whenever real time documentation is crucial. However, it is also challenging to work with to ensure reproducible and quantifiable analyses. This presentation will showcase how we manage and analyse videodata combined with other data streams. We focus on the use of GPS-equipped action cameras for recording in the field, and on multi-camera documentation work. ELAN [1], free software for time-aligned multi-media annotations, plays a central role in all our examples.

The first example focuses on location in a linguistic context, and the challenge of determining where a recorded utterance took place geographically. GPS logs share a timeline with the video and therefore any time-aligned annotations of that video. We will describe techniques we have developed for integrating action camera GPS-logs in ELAN to create a map of indigenous place names, using annotated action camera footage from a foraging trip on the Malacka peninsula, Malaysia [2].

The second example concerns multi-camera video documentation of archaeological excavations in an ongoing collaboration between archaeologists and linguists. Archaeology is fundamentally destructive. One layer of dirt has to be documented, then completely removed to uncover the next one. Thus, it is valuable to annotate discussions of decision making (where does one layer end, and why?), or to tag layers or finds being excavated in camera view. We will show an example where CIDOC-CRM [3] ontologies were converted and imported into ELAN as controlled vocabularies, together with synchronised excavation footage.

We will discuss technical challenges as well as possible strategies for transcribing noisy, multi-lingual video, together with building the tools for extracting, visualising, and managing the action camera data for environments that often lack internet and power outlets.

Keywords

video, annotation, tools, GIS

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A simplified motion capture workflow

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Abstract

The recording of human data from several sources is of interest to many researchers. For example, linguists and cognitive scientists may be interested in recording body movements in studies of sign language or studies of speech and speech-related gestures. Useful recordings require high spatial and temporal data resolution, and to achieve such precision it is necessary to record from several different sources. This is especially important if the recordings are subsequently applied to an avatar to be manipulated to suit different experimental cases.

A challenge with handling multi-source data streams (e.g., motion capture data for the body, glove data for hands and fingers, camera images for the face) is that the recorded data end up in separate systems. Collecting and synchronizing the data in post processing is a time-consuming procedure that is ineffective, especially for longer recordings.

We present a possible solution to this problem by using a visualization system, the game engine Unreal, as a recording tool. We send all the different data streams into Unreal and then record all the sources at once in that software which can handle several different input sources, including motion sources, sound and video.

Initial tests have shown that it is possible to do the recordings and easily export the data. We still need to ensure that the data quality is not negatively affected by recording in the visualization system, compared to recording them separately.

The proposed solution has several interesting implications. For example, it will be straightforward to generate avatars that can be used as input in experiments, making it possible to present a controlled environment to all test subjects in an experiment series. Moreover, it will be easy to produce materials that can be used in virtual reality settings, since all recordings are done in 3d.

Visualizing (for) the Humanties

Evelina Liliequist and Maria Podkorytova

Scientific visualization improves understanding of complex data in diverse disciplines and makes it possible to communicate the findings in clear, user-friendly and innovative ways. As academia becomes more multidisciplinary, visualization also provides a common language that bridges the gap between different fields of study. In the humanities, visualization not only complements traditional research methods, but also expands them. It helps researchers uncover hidden patterns, trace cultural and historical developments, and communicate their findings through visual storytelling.

InfraVis, Sweden's national infrastructure for data visualization and analysis, provides this type of valuable support to researchers at Swedish universities. By offering expert guidance, advanced technologies, and visualization tools, InfraVis assist scholars to turn raw data into something tangible. Several of the projects InfraVis have supported illustrate how visualization can enhance humanities research, including:

- **NordPow** (Gelfren & Tjomsland 2024) offers a comprehensive Nordic resource for researching churces and prayer houses. In addition, it documents and preserves the rich historical heritage associated with these religious sites across the Nordic region.
- **The Postcard Project** (Sarayeva, AI policy Lab 2025) links personal messages about climate change, shared through handwritten postcards, with climate data and information on economic inequality.
- **Visualizing Literacy of Children in School** (Grönlund, Öqvist Seimyr & Viberg 2024) explores ways of visualizing data concerning the literacy metrics of elementary school children in Swede, collected by using a sophisticated tool developed for this very purpose.

These examples demonstrate how InfraVis with our team of over 50 visualization experts, across nine universities, supports humanities research by helping researchers explore, interpret, and communicate data in new and meaningful ways.

From Handwritten Tables to Structured Data: AI Methods for Studying Wealth Inequality in Sixteenth-Century Sweden

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Abstract

Advances in AI-based text recognition have enabled highly accurate transcription of handwritten text. Yet the challenge is not only to read text, but also to reconstruct its structure: lines, headings, and, above all, tabular arrangements. This is particularly demanding in early modern sources, where handwritten tables often lack ruling lines and consistent formatting. This paper addresses how such sources – tax accounts and other fiscal documents preserved in the Swedish National Archives – can be processed by AI to yield diplomatic transcriptions with sufficient structural information for further analysis.

The discussion is framed by a research project (2025–2028) on wealth inequality in sixteenth- and seventeenth-century Sweden, with particular focus on the Älvsborg ransom of 1571. This unique survey recorded the wealth of the majority of households in Sweden and Finland, making it possible to reconstruct inequality at the micro level across an entire realm. Previous scholarship has either worked on aggregated national figures (Forssell 1872–1883) or restricted case studies (e.g. Harnesk 2000). The decisive innovation lies in AI-based methods that now make systematic exploitation of such large-scale material feasible.

The main challenge is not transcription accuracy – project training data already allow reliable recognition, especially of numerals – but capturing the way the sources are structured, by household, village, and parish. This is a complex task that depends on both textual and visual features. We report on experiments with region segmentation models (YOLO, Donut) and full-page transcription, which proved unstable. The proposed method combines line segmentation (YOLO) and recognition (TrOCR) with a classification model that identifies household boundaries, generating structured transcriptions that can be visualised, corrected in tools such as Transkribus, and exported for analysis. This workflow enables large-scale, automated extraction of household-level wealth data, opening new opportunities to study inequality in early modern Europe.

Keywords

Handwritten tables, Tax accounts, Structural segmentation, The sixteenth century

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Developing an interface for Swedish Medical Periodicals (SweMPer): A demo of the Swedish Medical History Portal

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Abstract

In this demo, we present a prototype of the web interface for The Swedish Medical History Portal, encompassing digitised Swedish medical periodicals spanning over two centuries. The interface is currently under development within the project *Communicating Medicine: Digitalisation of Swedish Medical Periodicals, 1781–2011* (SweMPer), hosted by the Department of History of Ideas at Uppsala University, in collaboration with the Centre for Digital Humanities and Social Sciences (CDHU) and the Uppsala University Library. The interface will allow researchers, students, and the general public to explore the digitised medical periodicals through keyword searches, page browsing, and metadata filtering based on publication year, periodical type, and layout elements. Additionally, the project is exploring the implementation of vector-based search and thematic exploration of the material based on topic modelling. The digitisation workflow combines machine learning-based layout detection with Optical Character Recognition (OCR) to segment and recognize structural elements of the periodicals, such as text blocks, titles, tables, and images, and extract the textual content from these regions. The resulting structured data is then indexed and enriched with metadata, forming the basis for both traditional search and advanced retrieval methods. SweMPer uses MongoDB with indexing for faster queries, a FastAPI and GraphQL backend for efficient data handling, and a Vite, Vue.js, and Tailwind CSS frontend for fast, responsive interfaces. It also integrates image resizing and optimisation to improve performance and scalability. During the demo, conference participants will have the opportunity to interact with the interface and provide feedback on its features and performance, which will be valuable for the development of the final version.

Keywords

interface, database, medical periodicals, digitalisation

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Unveiling Vernacular Schooling: Building a Digital Archive of Folk High School Reports

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Abstract

This contribution presents ***Folkhögskolans Arkiv***, a new digital archive that digitizes and curates the annual reports of Swedish folk high schools from 1868 onwards. As institutions with more than a century and a half of history, folk high schools are central to Nordic cultural life and adult education. Over the years, they have produced a vast series of annual reports documenting educational efforts, ideals, cultural currents, civil society, and labour market transformations. By combining OCR, metadata enrichment, and a flexible search and filtering interface, the archive makes this comprehensive material available for both scholarly analysis and wider societal use (for instance, local history writing and teacher training). The presentation will discuss the progress made in constructing the database to date and how this infrastructure can serve as an important asset for advancing digital humanities.

In the second part, we highlight early applications of **Word Rain** as a distant reading technique applied to this corpus. Word Rain, available within the HUMINFRA infrastructure, visualizes prominent terms in documents by using word embeddings, mathematical models that capture how words relate to one another in context. Unlike traditional word clouds, which rely on frequency alone, Word Rain arranges terms according to semantic similarity, enabling comparison of conceptual spaces across different sets of texts.

By deploying this tool and juxtaposing discourse from the annual reports with material from *Tidskrift för svensk folkhögskola*, a periodical conveying overarching school debates, we identify thematic shifts in the folk high school narrative across decades. We conclude by sketching future lines of development and noting challenges in building a new infrastructure at the crossroads of digital humanities, civil society, and popular education in the Nordic countries.

The Visible Speech platform – a platform for collaborative research efforts on spoken communication

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Abstract

Visible Speech (VISP) is a web-based research infrastructure hosted at Humlab, Umeå University, designed to enable secure and efficient research on audio recordings of speech. VISP addresses the dual challenge of facilitating advanced linguistic and interdisciplinary research while ensuring compliance with GDPR and Swedish legal requirements for handling personally identifiable and sensitive data.

The platform provides a unified environment for storage, controlled access, and reproducible signal processing of speech data, offering one of the most comprehensive sets of speech and voice analysis tools globally. VISP integrates with the Swedish Academic Identity Federation (SWAMID), enabling federated login for researchers across Sweden and supporting collaborative workflows without compromising data security. This allows the processing and analysis of sensitive recordings—such as those involving ethnicity, health, or union membership—within a secure digital framework.

Beyond analysis, VISP promotes long-term data stewardship by implementing standardized directory structures and supporting FAIR principles, thereby lowering barriers to archiving and data sharing. As part of the national research infrastructure, Språkbanken and SweCLARIN, VISP contributes to the European CLARIN ERIC ecosystem, strengthening Sweden's position in digital and experimental humanities. By combining a dedicated software framework, external security reviews, and national identity federation, VISP enables researchers to explore spoken language data in ways previously unattainable, fostering innovation and collaboration across disciplines.

Keywords
Research platform, National collaboration, Spoken communication

1. Introduction

Visible Speech (VISP) [1] is a web-based research infrastructure at Humlab, Umeå University, designed to handle audio recordings of speech in compliance with the national implementation of GDPR and security requirements. VISP provides a centralized environment for research across all disciplines, where recordings of spoken language constitute the primary material, meeting both researchers' needs for efficient workflows and legislators' demands for secure data management.

1.1. Adressing the barriers in research on spoken communication

One of VISP's primary advantages is its ability to facilitate research on audio recordings that constitute personally identifiable information (PII) under Swedish law undefined. These recordings may further contain sensitive content or have been made in sensitive contexts, classifying them as sensitive PII under national legislation. Sensitive content may arise in relation

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to, for instance, the ethnicity and religious beliefs of the speaker. Sensitive contexts may arise when the recording is made in a healthcare setting or in a situation where a person's membership in a union organization is disclosed.

1.2. End-to-end speech project management facilities

The VISP platform provides a unified and encapsulated environment for storage, controlled access, direct work, and reproducible signal processing of speech signals. It encompasses the most comprehensive set of speech and voice analysis procedures available within a single framework globally. Additionally, VISP facilitates the digital archiving of projects through a uniform, documented, and transparent directory structure, reducing barriers to making data available in accordance with archiving frameworks and the FAIR principles [3]. Research projects involving sensitive personal data in audio recording form require review by the Ethical Approval Authority and may subsequently utilize the VISP facilities.

1.3. Supporting distributed data collection and national collaborations

The work conducted within VISP is part of the national research infrastructure Språkbanken and SweCLARIN, the Swedish node of the European Research Infrastructure Consortium (ERIC) CLARIN. SweCLARIN aims to develop and provide a national and European infrastructure for speech and text-based e-science, offering extensive digitized materials and advanced language technology tools. A significant feature of VISP is its integration with the Swedish Academic Identity Federation (SWAMID), which enables secure, federated login for researchers across Sweden. This national federated login system allows researchers to access project data and collaborate on material processing in ways that were previously not possible. The recording of speech samples on-site is supported via a web interface, leveraging web technologies to inject the recording directly into the database securely. Recordings can also be uploaded and assigned metadata manually. Moreover, VISP supports projects by streamlining the steps involved in digital signal processing and audio analysis of the collected audio signals. This capability allows researchers to perform hands-on processing and analysis without the risk of disseminating sensitive audio recordings. Figure 1 presents an overview of component interaction and workflows in the research infrastructure. By leveraging SWAMID, VISP ensures researchers can work seamlessly and securely on collected materials, enhancing collaborative efforts and data-handling efficiency. By providing tools for direct manipulation and examination of audio data, VISP ensures that all stages of data handling, from collection to analysis, are conducted within a secure environment, thereby maintaining the integrity and confidentiality of sensitive information.

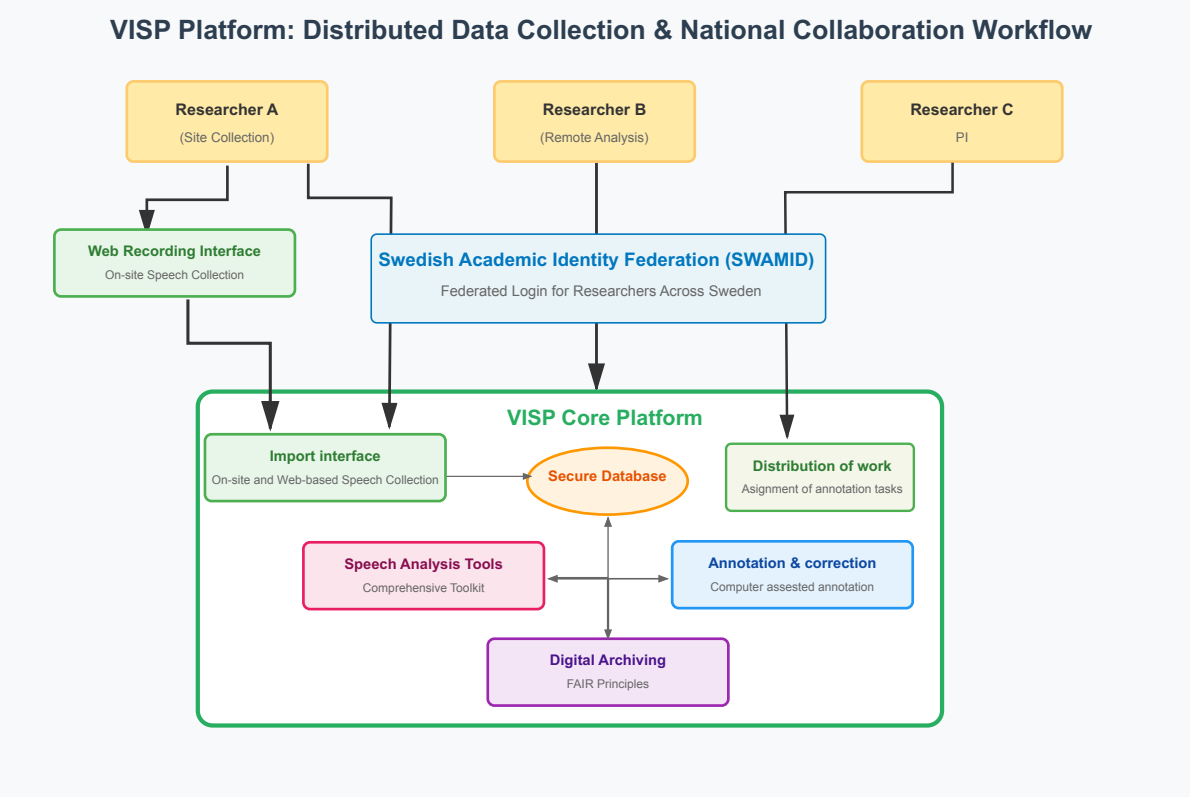

Figure 1: An illustration of the VISP infrastructure facilities for national collaboration by distributed (web-based or offline) data collection, annotation work allocation by the project leader or administrator, and remote annotation work and Digital speech signal analysis.

1.4. Future directions

The VISP platform continues to evolve, with planned developments including enhanced visualization capabilities, expanded processing algorithms, and integration with additional data types. The framework's modular design enables adaptation for other sensitive data contexts, suggesting potential applications beyond speech research. However, the growth of the platform has also revealed the complexity of supporting a truly interdisciplinary research infrastructure, where use cases emerge that challenge the original design assumptions. The conclusions on where data processing should be performed are ever-changing as new web-enabled technologies are developed, and assumptions that are reasonable now may not hold in the years to come. Frameworks for ensuring equivalence in results across technology updates are also a challenge.

2. Conclusion

Collaborative research on spoken communication in a national context is challenged by judicial and technical barriers, which limit large-scale national efforts. The VISP platform reduces these barriers by providing a secure encapsulated environment, with tools tailored to support predominant workflows in relation to speech recordings, automatic and manual annotation, and analysis of speech, in an environment that provides encapsulation to support data safety on the technical level, and safeguards against common user behaviors that may threaten data safety.

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From Access to Agency: Designing Inclusive "How-to" Tutorials for Digital Humanities Tools

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Digital humanities infrastructure has expanded rapidly, yet users from underrepresented backgrounds encounter persistent barriers accessing these resources (Posner, 2013). Traditional tutorials emphasize technical procedures while overlooking contextual needs of users new to digital research or navigating unfamiliar academic systems. This research proposes an equity-centered framework that moves beyond basic functionality to enhance digital fluency and foster interdisciplinary collaboration.

Drawing from instructional design theory (Gagné et al., 2005) and community-based pedagogy (Flower, 2008), this framework transforms tutorials into empowerment resources through plain language approaches, visual scaffolding techniques and culturally responsive examples that reflect diverse research contexts. Implementation studies from multilingual research teams and community archives demonstrate how inclusive design principles increase user confidence, improve tool adoption rates and sustain long-term engagement with digital infrastructure.

As a Ghanaian doctoral student at UTEP (an institution serving 84% Hispanic populations), I bring transnational perspectives to examining how tutorial design intersects with access, identity and academic belonging. This borderland context reveals how educational materials must acknowledge linguistic diversity and varied technological backgrounds to support meaningful participation in digital humanities communities. The research addresses practical challenges including adaptation strategies across different institutional settings and sustainable implementation approaches.

Current prototypes focus on onboarding materials for archival research tools and collaborative platforms commonly used in digital humanities projects. Pilot testing with graduate student cohorts and community partners provides insights into user preferences, accessibility barriers and effective scaffolding techniques. This paper will share design principles, user feedback from initial implementations and recommendations for scalable approaches to inclusive tutorial development that reflect global perspectives and promote equitable access to digital scholarship.

Keywords: digital humanities pedagogy; inclusive design; underrepresented communities

Recovering Speech from the Record: Aligning ASR with Swedish Parliamentary Transcripts

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Abstract

Parliamentary records are foundational sources for research in political science, linguistics, and digital humanities. Yet the official transcripts of proceedings do not always reflect what was actually said. In the Swedish Riksdag, speeches are filed in advance but often delivered with ad-libbing, omissions, or reformulations, while transcribers apply conventions that normalize or restructure the spoken material. These practices create divergences, often systematic, between speech and text, complicating their usefulness in speech research.

We present an approach for producing near–gold-standard transcripts by aligning automatic speech recognition (ASR) output with the official record. Our pipeline extends Nvidia's NeMo toolkit to Swedish, with dynamic denormalisation of non-standard words (NSWs) such as numbers, abbreviations, and other conventional forms. Unlike deterministic normalization, our system generates multiple plausible spoken variants and uses the acoustic evidence to select the correct expansion. Beyond this, we exploit syntactic information: by parsing both the ASR hypotheses and the official transcripts, we can identify and reconcile divergences that go beyond surface forms, including tense variation *(har sagt → sade)*, expansion of nominal phrases *(akten → den här akten)*, and clause movement within sentences.

The resulting resource balances fidelity to spoken language with compatibility to the official record, offering a basis for corpora that are both reliable and reusable. By working with pairs of dependency parses, we preserve explicit links between each sentence in the record and its realization in the recording, ensuring that variation can be traced without losing alignment. Looking ahead, we are exploring how this workflow can be connected to the Riksdag's public API, so that new recordings are processed as they become available. This would enable continuously updated, speech-aware records of parliamentary debate, supporting longitudinal studies, cross-modal analyses of speech and text, and downstream applications such as stance detection or discourse analysis.

Keywords

automatic speech recognition (ASR), parliamentary speech, text–speech alignment, non-standard words (NSWs), speech corpus creation

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Scene-compliant Indoor Pedestrian Trajectory Generation

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Abstract

Pedestrian trajectory data are essential for applications such as indoor navigation, crowd behavior analysis, and safety management. However, in many real-world indoor environments, complete trajectory information is often unavailable due to privacy constraints, sensor occlusions, and limited camera coverage. Reconstructing the missing parts of trajectories is challenging because human motion is inherently stochastic and strongly influenced by the surrounding spatial layout. To address this problem, we extend the Conditional Score-based Diffusion Model (CSDI) to incorporate spatial context from indoor scenario maps. The proposed framework learns to generate the unseen segments of pedestrian trajectories by progressively denoising random noise into plausible motion paths, conditioned on the observed trajectory, start and end positions, and the environmental layout. The scenario maps encode structural elements such as walls, doors, and walkable areas, and are represented as auxiliary spatial tensors that guide the diffusion process. This conditioning encourages the model to respect environmental constraints and produce trajectories that are both physically feasible and behaviorally realistic. We evaluate the proposed approach on indoor trajectory datasets covering various layouts and occlusion conditions. While quantitative performance remains preliminary, qualitative results show that the generated trajectories align well with the visible observations and adapt naturally to environmental geometry. The inclusion of scenario maps enhances spatial coherence and visual plausibility compared with the baseline CSDI model. These findings demonstrate the potential of integrating structural map information into diffusion-based generative models for trajectory completion. Future work will focus on improving quantitative accuracy and extending the framework to multi-agent and dynamic indoor environments.

Keywords

Pedestrian Trajectory Modeling, Generative AI, Diffusion

Conquering Space: Mapping Victorian Women's Travels

Theodora Stavroula Korma and Olga Rojas Valle

Following the footsteps, smoke trails, and sea voyages of Nellie Bly and Isabella Bird, two of the most travelled women of the Victorian era, this research reconstructs and analyses their global journeys using digital methods, with ArcGIS Pro as the primary infrastructure. Women travelled extensively during the Victorian era; some sought adventure and discovered "exotic" lands, while others pursued political refuge. Isabella Bird, the first woman elected as a Fellow of the Royal Geographical Society, recounts the lands and people she encountered in her books. Nellie Bly, inspired by Julio Verne's *Around the World in Eighty Days*, set out to beat the established record, completing her journey in 72 days, which she chronicled in *Around the World in Seventy-Two Days*.

This research employs a bi-disciplinary approach, combining close reading of these primary sources with distant reading through spatial humanities. Through close reading, the two books are scrutinised by highlighting observations and comparisons of various types of transport, different travel routes, and cultural observations, while tracking the departure and arrival times, the type of travel vehicle, and the name of the place. This will provide insights and comparisons between different travel routes and various types of transport from each destination. These metadata elements are added to ArcGIS, along with their latitudes, longitudes, and the metadata components identified through close reading. Therefore, by examining the spaces and places described in Bly's and Bird's travelogues, the study maps shifting political boundaries, historical events, and modes of transport in the 19th century, while exploring the challenges faced by women in male-dominated spaces and the figure of otherness.

The approach is designed to be replicable, enabling future scholars to apply it to other travelogues or develop larger datasets and digital mapping platforms for 19th-century women's travel, with ArcGIS Pro supporting visualisation and analysis. In this way, the study moves beyond a single case, offering a model for broader scholarship on women's mobility and spatial experience in the Victorian era.

These methodological choices address the question: How can digital mapping recover, compare, and contextualise women's travelogues while revealing fuzzy boundaries of space and gender in the 19th century? The study also highlights potential challenges and advantages of this approach and emphasises the importance of user training for scholars adopting digital methods in historical research.

Keywords: Victorian women travellers, Digital humanities infrastructure, Digital mapping, Travelogues, Spatial humanities

Språkbanken CLARIN och dess kunskapscentra som ett stöd för humanistisk forskning

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Språkbanken CLARIN (SBC) är den svenska noden inom *CLARIN-ERIC*, en europeisk digital forskningsinfrastruktur för språkbaserad forskning inom humaniora och samhällsvetenskap. SBC är ett nätverk av tio universitet och myndigheter som samarbetar med målet att ta fram språkresurser som korpusar, modeller och verktyg, samt tillhandahålla användarstöd.

En central del av verksamheten är certifierade kunskapscentra, som utvecklar och underhåller digitala resurser och fungerar som utbildnings-, rådgivnings- och stödenheter för forskare inom humaniora och samhällsvetenskap. Inom SBC finns fem certifierade kunskapscentra:

1. **CLARIN-MULTISENS** (*Multimodal and Sensor-Based Data*, Humanistlaboratoriet, LU) är specialiserade på multimodala metoder och resurser, och erbjuder avancerad utrustning och expertstöd för experiment rörande kognition, interaktion och kommunikation. Insatserna omfattar bland annat multimodal prosodisk perception, handskriftsigenkänning och samarbetsinriktade skrivprocesser.

2. **CLARIN-SPEECH** (*Speech Analysis*, KTH) inriktar sig på analys av tal och gester, talsyntes och taligenkänning. Centret erbjuder expertis inom insamling, behandling, annotering och användning av stora multimodala talkorpusar, samt rådgivning kring fonetiska och automatiska analysmetoder.

3. **CLARIN-SWELANG** (*The Languages of Sweden*, Isof) fokuserar på att med hjälp av språkteknologiska verktyg tillgängliggöra språkligt material i text och tal från Isofs samlingar.

4. **CLARIN-DiaRes** (*Diachronic Language Resources*, UU, GU och Riksarkivet) tillhandahåller expertis kring lagring, bearbetning och tillgängliggörande av diakroniska korpusresurser, samt verktyg och stöd för analys av historisk text.

5. **CLARIN-SMS** (*Swedish in a Multilingual Setting*, LiU, UU och SU) riktar sig till forskare som har behov av analys, annotering och bearbetning av svenska eller flerspråkiga texter, inklusive svenskt teckenspråk. Centret tillhandahåller korpusar och verktyg för grundläggande textbearbetning, såsom tokenisering, morfologisk analys, ordklasstaggning, syntaktisk parsning och namnigenkänning.

I vår presentation ger vi en översikt över Språkbanken CLARIN och dess kunskapscentra, med fokus på hur dessa kan bidra till att stödja humanistisk forskning med hjälp av digitala metoder och resurser.

Braxen and Sardin: Swedish resources for speech technology and speech science

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We present two Swedish resources for speech technology and speech science: Braxen [1], a pronunciation dictionary, and Sardin [2], a speech-oriented text processing system. They have been in daily use at the Swedish Agency for Accessible Media (MTM) since 2006, supporting the production of talking books and newspapers with text-to-speech (TTS) synthesis. They are particularly adapted to handle long and information-dense texts, such as university textbooks. Both resources have been refactored and released in collaboration with Språkbanken Tal.

Braxen contains over 800 000 entries and is continuously updated with new words, mainly retrieved from the latest news or from university textbooks. The majority of the entries is Swedish but there are also proper names and terms in other languages. The released version includes the following linguistic information:

- orthography
- part-of-speech
- language
- phonetic-phonological pronunciation
- casing
- ID

Sardin is a speech-oriented text processing system for Swedish, developed for preparing text for speech technology and speech science purposes. It takes raw text as input and processes it through a pipeline of modules, including:

- chunking into sentences and tokens
- analyses of for example numeral expressions, law references and email addresses
- expansions of for instance Greek characters and abbreviations
- domain- and context-dependent pronunciations fetched from Braxen or automatically generated by a grapheme-to-phoneme (G2P) converter

The output format is SSML (Speech Synthesis Markup Language) which may consist of textual expansions (e.g. “två” for “2”) or phonetic-phonological expansions of the text (e.g. /t v ‘o:/).

We hope that these resources will be of interest not only to speech technologists, but also to the wider community working with language, accessibility, and speech science and applications.

The resources are available on GitHub:
https://github.com/sprakbankental/braxen
https://github.com/sprakbankental/sardin

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A Walkthrough of the `text2map` Package in `R`

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Abstract

text2map is an `R` package with libraries and utility functions for computational text analysis. The functions are optimized for working with various kinds of text matrices. Focusing on the text matrix as the primary object—which is represented either as a base `R` dense matrix or a `Matrix` package sparse matrix—allows for a consistent and intuitive interface that stays close to the underlying mathematical foundation of computational text analysis. In particular, the package includes functions for working with word embeddings, text networks, and document-term matrices. In this walkthrough, I will showcase how `text2map` can be used to work with word embeddings for social science applications.

Keywords

`text2map`, `R`, computational text analysis, social sciences

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[*]This package is introduced in the following article: Stoltz, Dustin S. and Marshall A. Taylor. 2022. “text2map: R Tools for Text Matrices." *Journal of Open Source Software* 7(72):1-4.

Demonstration of voice mapping with FonaDyn

Sten Ternström

Project Mission: To improve the evidential value of objective measurements of the voice. There are many good reasons for making voice maps, and FonaDyn was created to demonstrate these reasons to the clinical, pedagogical and research communities in voice. This colourful hands-on demonstration will give examples of how voice maps

- visualize variabilities *within* a voice – promote understanding
- account for the systematic, non-linear dependencies of all conventional metrics on SPL and f_0 , which greatly improves the evidential value of objective measurements
- reliably detect and quantify changes across interventions, even when changes are complex, non-linear or just subtle
- engage both client and practitioner, with real-time visual feedback

The work is proceeding in several steps:
1. Develop and maintain a proof-of-concept system with sufficient functionality to be directly useful in selected academic, clinical and pedagogical settings;
2. Use the system for in-house experiments on voice analysis, and publish them;
3. Invite other potential users to try out voice mapping, using FonaDyn as a tool in their lab, classroom, clinic or studio; and to learn from the experiences of others;
4. Encourage and support the users' own endeavours, with online media, workshops and personal engagement, through to publication.

Steps 1 and 2 have been ongoing since 2015, with forays into singing, phoniatrics, logopedics and phonetics. This presentation is part of Step 3. The FonaDyn project is not about developing a commercially viable product; instead, the code, the documentation and the development tools have all been placed in the public domain, under an open license. See https://www.kth.se/profile/stern for more information.

Human infrastructures: developing research technical careers in the Nordics

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Abstract

Infrastructures offering scientific support in Sweden and in the Nordics recognize the need for technically skilled human capital. Without technically skilled individuals, such as digital Research Technical Professionals (dRTP; e.g. research engineers, data stewards) no infrastructure would be able to provide support to researchers. This is particularly true in the humanities, where digital skills are typically outside the typical study and work focus of researchers. Because most dRTP operate outside academic career paths, they are rarely offered a path to career growth beyond their current role. In many cases – since many infrastructures are embedded in the institutions they serve – dRTP are expected to work under the same employment system as the academics they support; however, the visibility of their scientific contribution and output – software, technical knowledge, implementations, visualizations – is often only a supporting detail of the work of others. Moreover, dRTP rarely have access to institutional grants and, especially for those without a PhD, research grants, which in academia are the main way to enhance one's personal career development. They are, in other words, embedded in academia without being able to fully exploit the academic system. Here, we argue that the Nordics would benefit from the existence of a funded body dedicated to improving research software. Such an institute would provide a unified framework concerning the development of research software, the employment of dRTP, and the implementation of FAIR principles in digital outputs – as well as providing teaching material and network for everyone, for example by collaborating with existing initiatives, such as CodeRefinery. Furthermore, it would provide the leverage necessary to move things at the institutional level. The success of grassroots organizations such as Nordic-RSE, aiming to provide a network to research software engineers, shows that dRTP want and need a space where to develop themselves among similar minded people. We believe that such an institute would go a long way in providing visibility to dRTP and improving research software – and thus research as a whole – for everyone.

Keywords

Digital Research Technical Professionals, career development, research software

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The Perception of Factivity

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Abstract

Factive verbs such as 'know' or 'discover' (as in 'John knows that Mary speaks Italian') normally entail the truth of the embedded proposition ('Mary speaks Italian'). However, these verbs may be used non-factively (as in: 'In the Middle Ages people knew that the Earth was flat').

In a previous study, we examined whether English and Italian speakers prosodically differentiate between utterances in which factive verbs are used either factively or non-factively. We found that this was indeed the case. The verbs in the English utterances were more prominent in non-factive contexts than those in factive contexts. In Italian, the verbs were not more prominent in non-factive contexts, however, the speakers made use of other prosodic cues to differentiate their utterances depending on whether the context was factive or not.

In the current study, we ask whether listeners are sensitive to the prosodic features of factivity. We used utterances recorded in the previous study and presented them to listeners using an online interface. The utterances were presented in a short context which made clear whether the utterance was factive or not. The context was followed by a question asked by an imaginary speaker. Then, the listener had a choice of two versions of the same reply. One version had been given in the previous study in a factive context, and the other had been given in the non-factive context. The listeners' task was to choose the version they thought sounded most natural in the context in which the reply was given.

The results suggest that the listeners discriminated the two types of replies, matching them with the correct context. In factive contexts, they predominantly chose factive replies, while in non-factive contexts their choice fell predominantly on non-factive replies. This pattern was observed in both languages, and was significant in the statistical analysis.

Keywords
factivity, prosody, perception

Qualitative Research with LLM Chatbots: Technological Reflexivity for Interpretative Technology

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ABSTRACT

In this article, we advocate for qualitative research using LLM chatbots. While qualitative research may seem incompatible with generative artificial intelligence, we argue that these tools are fundamentally qualitative as they are built from text and are sensitive to social meaning. Research using LLM chatbots should adhere to standards of reflexivity, in which researchers critically reflect on and accept accountability for the complexity and ambiguity inherent in the research process. Instead of emphasising statistical validity and generalizability, responsible research use of LLM chatbots requires *technological reflexivity*: examining model bias; researcher-algorithm interaction; critical evaluation; transparency; methodological reflexivity; and ethical considerations. We describe LLM chatbots, highlighting considerations that should determine their use. We introduce the elements of technological reflexivity in research with LLM chatbots and consider the impact on qualitative research outcomes. LLM chatbots can accelerate the research process, assist with thematic analysis, reveal ressearchers' background assumptions, and make coding decisions more transparent. However, LLMs also introduce additional complexity into the research process, requiring researchers to manage important issues related to LLM model selection, personal and sensitive data protection, and the limits of informed consent. We conclude that, when used reflexively, LLM chatbots can make a positive contribution to the analysis of qualitative data. However, human researchers are necessary because research results must still be interpreted qualitatively.

Keywords: large language models, reflexivity, LLM chatbots, qualitative methods, interpretation

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Author Contributions

The authors confirm their contribution to the paper as follows: all authors contributed to the study conception and design. Data collection for Twitter bios: Elida Izani Ibrahim; data collection for etiquette corpus: Andrea Voyer. All authors contributed to the analysis and interpretation of results, drafted manuscript preparation, reviewed the results, and approved the final version of the manuscript.

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The study from the Twitter bios example used as an illustration in this manuscript received ethical approval by *Etikprövningsmyndigheten* (Swedish Ethical Review Authority) (Dnr 2022-03325-01) on August 16, 2022.

Data availability statement
The datasets generated during and/or analyzed during the current study are available from the corresponding author upon reasonable request.