

# Preface

This handbook is a result of the first Huminfra Conference (HiC 2024), which was held in January 2024 at the University of Gothenburg and organized in the context of *Huminfra*. As the central website [huminfra.se](https://huminfra.se) explains, “Huminfra is a Swedish national infrastructure supporting digital and experimental research in the Humanities by providing users with a single entry point for finding existing Swedish materials and research tools, and by developing national method courses.”

Perhaps not surprisingly, artificial intelligence (AI) – a branch of computer science devoted to developing systems capable of performing tasks that typically require human intelligence, such as learning, reasoning, and problem-solving – and its subfield natural language processing (NLP) – focused on understanding, interpreting, and generating human language – play increasingly significant roles in approaches relevant to the humanities. Both AI and NLP rely heavily on advances in machine learning and the availability of large-scale digital data. In recent years, these fields have undergone profound transformations, marked by shifting priorities, innovative techniques, and expanding applications. These changes are reflected in the evolving methods and resources shaping contemporary humanities research. Given their broad scope, AI and NLP need to be situated within specific disciplinary contexts to yield meaningful and practical outcomes. When these technologies are applied to and integrated with the humanities – drawing on digital tools, computational methods, and large datasets – they give rise to what is commonly referred to as the digital humanities and, when additionally combined with empirical methods from the behavioural sciences, experimental humanities.

The chapters in this handbook contribute to Huminfra’s mission to strengthen and advance the field of digital and experimental humanities in Sweden by showcasing what existing digital tools, research methodologies and innovative infrastructural components can offer to the field through examples and step-by-step guidelines.

## *Organization of the volume*

The volume begins with a chapter introducing the Huminfra infrastructure itself, and describing its context, aims and organization. The rest of the volume is organized in two parts.

The first part, *Infrastructure units, labs and centers*, provides an overview of four units that operate in the area of humanities infrastructure in Sweden:

KBLab at the National Library of Sweden, the Gothenburg Research Infrastructure for Digital Humanities (GRIDH), the Centre for Digital Humanities and Social Sciences (CDHU) at Uppsala University, and the lexicography unit at Språkbanken Text (SBX). They represent coordinated ecosystems of digital tools, services, data, and expertise designed to enable and enhance scientific inquiry, and provide researchers with the means to store, access, analyse, and share data across disciplines and national borders, thereby fostering open science, innovation, and data-driven research practices.

Building on technological developments in AI and NLP, the chapters collected in the second part of this volume introduce a diverse array of *Tools, methods and resources*, accompanied by practical guidelines and, where relevant, code implementations. Many contributions also feature real-world case studies that demonstrate how such approaches can be applied in humanities research. Together, the tools and case studies aim to advance research and methodology across disciplines such as history, linguistics, literature studies, and religious studies. The approaches presented span a wide range of techniques – from topic modelling, optical character recognition (OCR), and handwritten text recognition (HTR) to the use of computational notebooks – and include tools for targeted corpus searches, linguistic analysis, and data visualization. They further encompass methods for processing multiple data modalities, including audio, images, and video, as well as key digital resources vital for experimental and NLP-based research, such as learner corpora.

Taken together, while the primary focus of this volume is on Swedish researchers and the Swedish language, many of the presented approaches are language-independent, and are readily transferable to other domains. Likewise, language-specific approaches may serve as models or inspiration for adaptation to other linguistic and cultural contexts.

#### *A note on the compilation process*

HiC 2024 took place at the University of Gothenburg at the beginning of 2024, and was followed by a call for handbook chapter proposals in the spring of that year. The final selection of 16 contributions presented in this volume was made on the basis of both external reviews by peers and internal reviews by the editors, of the full chapters.

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