LUND UNIVERSITY

Humanities Lab

JOINT FACULTIES OF HUMANITIES AND THEOLOGY

Annual Report 2023

Cover photo: Tim Bishop

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The Director's welcome

Welcome to the Annual Report of Lund University Humanities Lab 2023. The Lab is a department for research infrastructure at Lund University open to researchers, teachers, and students across Lund University and beyond. We host technology, methodological know-how, data management and archiving expertise. Lab activities evolve around issues of culture, communication, and cognition – traditional domains of the Humanities – but many projects are also interdisciplinary and conducted in collaboration with the Social Sciences, Medicine, the Natural sciences, Engineering, and e-Science. The Lab enables researchers to combine traditional and novel methods, and to interact with other disciplines. We provide training in hosted technologies and related methods through courses and tutorials, seminar series, and demo sessions. We are also an arena for contact and collaboration between academia and stakeholders in education, industry, health, and cultural institutions, and we act locally, nationally, and internationally.

In 2023 Lab activities flourished, having recuperated from the effects of the pandemic. As this Annual Report will highlight, new users and projects, local, national and international, found the Lab, others continued ongoing research activities and creative work using many different types of technology, often combining them in new ways. The new so-called profile areas at Lund University generated new collaborations and user projects. The Lab offered courses, tutorials, consultations, and seminars both on site and online. Online conferences were held in the Lab premises, and a range of activities involved science communication such as Lab members participating in the *Unexpected* event, a science outreach event at Mejeriet in Lund. The Lab hosted many international visitors over the year, many of whom are returning friends. The Lab was also awarded a number of competitive grants, for which we are very grateful, which enabled upgrades of equipment and expertise.

Finally, the Lab's engagement in national infrastructures also reached fruition on many fronts in 2023. The national infrastructure for the humanities, Huminfra, led by the Lab and funded by the Swedish Research Council and the 11 universities and organisations that make up the consortium, launched the website huminfra.se which collates and points to resources across the country. It also hosted a range of other activities, including webinars for the general public. Two other national infrastructures to which the Lab belongs, InfraVis and Swedigarch, dedicated to scientific visualization and digital archeology, respectively, also engaged the Lab in a range of activities.

This Annual Report 2023 showcases a selection of Lab activities in 2023, highlighting that the Humanities Lab remains a dynamic, creative environment where researchers can tackle new exciting scientific challenges across a range of disciplines. Welcome to have a look and be inspired.

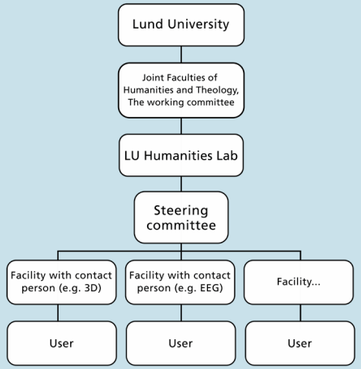
Marianne Gullberg, Director

The Dean's introduction

Lund University Humanities Lab is a vital resource for scholars in the fields of Humanities and Theology. Since the start in 2007, the scope of its activities has grown and today, the Lab provides essential expertise in and tools for experimental approaches, measurements, digital technology, AI, but also resources for qualitative work and mixed methods. In an era of generative AI, mobile technologies, and a constant presence online, the skill sets and tools provided by the Humanities Lab have become ever more important to our researchers to tackle contemporary research challenges. As a leading research and training facility with users from most faculties, the Humanities Lab has become an important part of Lund University's infrastructural landscape. However, it also plays an important role at the national level as a leader of the Swedish national research infrastructure for the humanities, Huminfra, which unites 12 nodes across the country. In 2023, the Humanities Lab was awarded continued funding for this enterprise for 2025-2028. Collaborations between researchers from around the world are also facilitated through the Lab, further enhancing the global reach and impact of the Humanities in Lund. The Humanities Lab has become an important hub for interdisciplinary research, providing a productive and collaborative environment for scholars and students alike. The Joint Faculties of Humanities and Theology are happy to host this dynamic and innovative unit.

Johannes Persson, Dean

Organisation



The Humanities Lab is a university wide research infrastructure, located within the Joint Faculties of Humanities and Theology. It is led by the Director, who is also the Chairman of the Steering committee.

Organisationally, research in the Lab is of two kinds. Most research in the Lab is conducted by scholars whose research grants and groups are located in their home departments. These scholars come to the Lab to conduct their empirical studies using Lab equipment and resources, and then return to their home departments. The Lab also hosts its own externally funded research projects focusing on infrastructure, as well as national infrastructures.

Steering committee

DIRECTOR
MARIANNE GULLBERG

Marianne Gullberg is professor of Psycholinguistics at the Centre for Languages and Literature. Her fields of expertise include adult second language acquisition, bilingual acquisition and processing, and gesture production and comprehension in acquisition. Her current research targets multimodal bilingual language processing, the earliest stages of implicit language learning, bimodal discourse cohesion, and method development for studying input in second language acquisition. She leads the RJ-programme *Transdisciplinary Approaches to Learning, Acquisition, Multilingualism* (TEAM), the research platform *Language Acquisition, Multilingualism and Teaching* (LAMiNATE; w. J. Granfeldt), is deputy coordinator of the profile area *Natural and Artificial Cognition* (w. K. Åström), and Director of the national research infrastructure *Huminfra*. She is a Wallenberg Scholar.

DEPUTY DIRECTOR
FRIDA SPLENDIDO

Frida Splendido is senior lecturer of Swedish as a Second Language at the Centre for Languages and Literature. Their research focuses phonetics and phonology in second language acquisition and simultaneous bilingualism, in particular from developmental perspectives. They also have an interest in second language teaching. They are coordinator for the research platform *Language Acquisition, Multilingualism and Teaching* (LAMiNATE; lead by M. Gullberg and J. Granfeldt) and for the RJ-programme *Transdisciplinary Approaches to Learning, Acquisition, Multilingualism* (TEAM; lead by M. Gullberg).

RESEARCH ENGINEER
STEFAN LINDGREN

Stefan Lindgren is a research engineer in the Lab with special responsibility for technology and procurement. His particular expertise lies in 3D data, motion capture, and Virtual Reality.

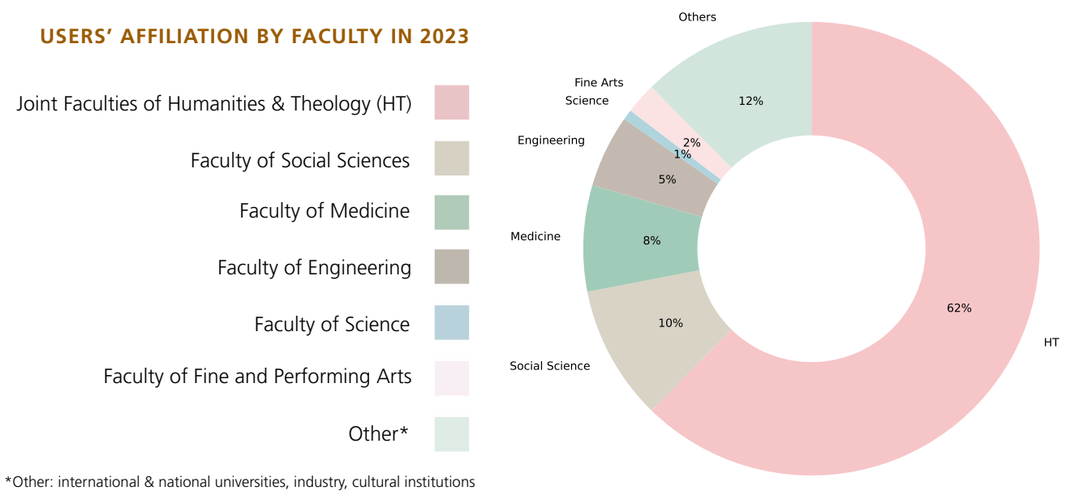
ADMIN. COORDINATOR
MAJA PETERSSON

Maja Petersson is administrative coordinator in the Lab. She is responsible for developing and monitoring action plans, policies, and project management in the Lab. She is administrative support for HR, work environment och safety questions. She is also web manager and responsible for communicating about the Lab internally and externally.

Brief facts 2023

LAB USERS	542
PROJECTS (NEW 2023)	90 (30)
CONSULTATIONS	106
DEMOS	43
OFFERED GROUP TUTORIALS	28
PHD LEVEL COURSES	5
EMPLOYEES	23
VIEWS ON YOUTUBE	6,500

USERS' AFFILIATION BY FACULTY IN 2023



*Other: international & national universities, industry, cultural institutions

Funders

- FORMAS
- The Joint Faculties of Humanities and Theology
- Knut and Alice Wallenbergs Foundation
- LMK Foundation
- Lund University Research Board
- The Swedish Research Council
- Kungliga Fysiografiska Sällskapet

Research

This section presents a selection of the research activities in the Humanities Lab during 2023. It is not exhaustive, but aims to give you a flavour of the scope, breadth, and interdisciplinarity of the studies conducted in the Lab.

EYE-TRACKING

The Humanities Lab is equipped with several state-of-the-art eye-trackers, suitable for a wide range of studies. An important section of the Lab's eye-tracking facilities is the digital classroom which offers the unique possibility of simultaneous recordings of eye movements from up to 16 participants.

Technical upgrading continued in 2023. The digital classroom was upgraded with new headphones with microphones as well as new webcams and USB hubs. New software for this part of our facilities was also published and put to use during the year. This software enables the remote management of each of the recording stations in the digital classroom and allows for entirely separate experiment environments (Niehorster, M. Nyström, M. Gullberg). New software for validation and automatic determination of data quality (accuracy and precision) from wearable eye-tracker recordings has also been made available. The software development was a collaboration between the Humanities Lab (Niehorster, M. Nyström) and researchers at Utrecht University (Benjamin, Hessels, Hooge). The Lab has also initiated customisable technical solutions. While off-the-shelf eye-tracking systems are the best option for most users in the Lab, the new customisable solutions and the associated software are also available for advanced users whose project requires them. The Lab's customisable eye-tracking setup now consists of three Basler Ace cameras, two Adimec Norite cameras, a Matrox Rapixo Quad CXP-12 framegrabber and a selection of lenses, mounting hardware and other accessories. This equipment is paired with the software Matrox Rapixo Quad CXP-12 framegrabber. This line of customisation will continue in 2024 with the aim of providing cost-effective and accurate eye-tracking.

In 2023 eye-tracking was used in a range of research projects across different disciplines. New projects included a study of how gender-fair forms in French impact the readability of a text (see highlight, p. 8). Another project studied how webpage design affects how user-friendly users find them (Liss, Eriksson). Another project sought to determine whether a programming tool using visual highlighting could help novices to read code in a more non-linear fashion (McCabe). A previous project in the Lab has found that this is how experts check their code for errors (McCabe, Söderberg, Church, Börstler, Niehorster, Rydenfäldt). Other projects used eye-tracking to study how fine eye movements are used for disambiguation of surface structure, for example, to distinguish between a smooth and a rough surface (Jörntell), and virtual lectures in different interfaces (Nirme, Yousif Mesbah).

Several projects continued on from 2022 into 2023. One such project focused on how auditory and visual noise affect the performance in memory tasks for children with

User project

GENDER-FAIR LANGUAGE IN FRENCH

In her PhD project, Julia Tibblin studies gender-fair language in French (*écriture inclusive*), that is, ways of including both masculine and feminine forms to make language more inclusive, as opposed to using the masculine as the generic or neutral form. Gender-fair forms is a controversial topic in France. Tibblin's previous studies have explored how gender-fair language is viewed by the public and how specific forms are interpreted by readers. In a new study, Tibblin uses eye-tracking to explore potential effects on comprehension as measured by reading times and reading patterns. She focuses on two different gender-fair forms of nouns, the so-called complete double forms (*joggeuses et joggeurs*, both feminine and masculine forms of the noun included) and the contracted double form *(joggeur·euses* in which both masculine and feminines endings are included on one single noun). In addition to the double forms, the experiment includes the traditional masculine as neutral (i.e. *joggeurs*). Each form is compared to control items that have been matched for length and typography. Preliminary analyses indicate that only the contracted double form differs in reading time from its matched controls, which implies that it is more difficult to process.

ADHD. The project brings together the Lab (M. Nyström), the Medical faculty at LU (Jostrup, Claesdotter-Knutsson, Tallberg, Gustafsson), and Western Norway University of Applied Sciences (Söderlund). Another project looked at the so-called 'quiet eye' effect, whereby experts look longer at a target than novices just before acting in a computerized task. The research particularly focused on the eye–mouse coordination in e-sport (Dahl, M. Nyström). Another project focused on grammatical challenges in children with developmental language delay and children speaking a second language, specifically the processing and production of complex noun phrases in Swedish (e.g. *det röda huset*, 'the red house') (Reuterskiöld, Linköping University; M. Nyström). M. Nyström and Niehorster also continued their long-standing collaboration with the Vestibular Lab at the Skåne University Hospital where they develop a system for video head impulse testing, vHIT, to assess difficulties with balance and dizziness (M. Nyström, Niehorster, Fransson, Magnusson, A. Nyström, Tjernström).

The Lab's eye-tracking facilities were also used in a student project studying the impact of noise on reading when some of the words are misspelled (Pallasch).

Several projects with a methodological focus engaged Lab members in international collaborations to develop workflows, examine data quality and methodological robustness. For example, collaborators from the Lab (Nyström, Niehorster), IMT Lucca in Italy (Byrne), and TU Munich in Germany (Macquiling, Kasneci) used deep learning and synthetic data approaches to train models for gaze estimation. This new method provides a cost-efficient and lightweight training alternative, eliminating the need for hand-labeled data. Another collaboration between the Lab (M. Nyström, Niehorster), Tobii Pro

AB (Andersson) and Utrecht University (Hooge, Hessels) focused on the development of a new algorithm for eye blink detection. Finally, Lab staff (M. Nyström, Niehorster) collaborated with colleagues at Utrecht University (Hooge, Hessels) to build a novel setup combining a head-mounted eye tracker and a ceiling-mounted machine vision camera to assess very large gaze shifts (up to 140°).

Local and national engagement included supervision of doctoral students who use eye-tracking in their PhD projects in Archaeology (Niehorster), child and adolescent Psychiatry (M. Nyström), Computer science (Niehorster), Music pedagogy (M. Nyström) and Neuroscience and Economics (Niehorster).

DATA MANAGEMENT AND ARCHIVE SERVER

Corpora are structured and often annotated collections of (mostly language) materials. The Archive server in the Lab is a facility for long-term, secure storage of such data. Crucially, it functions both as an archive and as a collaborative workspace, with options for dynamic data management to upload, edit, and enrich data and metadata. Metadata are publicly visible, browsable, and searchable through the archive browser, while the actual data are password-protected. Data access is granted by data owners/depositors at four access levels. The Archive server thus enables data discovery, and serves as a means to connect and collaborate with researchers responsible for relevant collections.

In 2023, the facility was upgraded through development of workflows as well as tools and libraries that allow archive managers to batch ingest large data sets at once. Another tool was developed that compares folder and file structures, thus allowing for integrity checks (e.g., for identification of duplicate files) after large data migrations.

Several new requests for access to collections were processed in 2023, for example to *SWEDIA*. The *SWEDIA* corpus consists of speech samples from over 1,300 spea-

kers representing 107 Swedish dialects. The material will now be used to train a model on detecting Parkinson in voice quality (Jakobsson).

In 2023, the RWAAI project, The *Repository and Workspace for Austroasiatic Intangible Heritage*, came to a close. This project worked for the preservation of research collections documenting the languages and cultures of communities from the Austroasiatic language family of Mainland Southeast Asia and India. Project members collaborated with Lab members (Frid, J. Larsson) to archive data from Nicobarese (Singh, University of Waterloo), Temiar (Benjamin, Nanyang Technological University), and Semelai (Gianno, Keene State College). The project, directed by researchers at Lund University, has yielded over 6TB of archival data from both digital and legacy sources. The majority of the analog data was digitised for the first time by RWAAI between 2012-2023 (Burenhult, Kruspe).

Work on the LANG-KEY project, *Language as key to perceptual diversity*, also concluded in 2023. This project was a collaboration between several European universities and aimed to explore human perception and how it varies across languages and cultures. In 2023, collections from Avatime and Ewe, both languages spoken in Ghana (van der Putten, Radboud University) complemented the corpus. Action camera examples were also added from Jahai, spoken in peninsular Malaysia, (Burenhult, Lund University) and Eastern Penan, spoken in Malaysian Borneo (Sercombe, Rothstein, University of Southern Denmark). These additions resulted in 1.5 TB of archival data.

In 2023, work on the Yamdena node was also finalized. Yamdena is an Austroneisan language spoken by 30,000 people in the Tanimbar Islands in eastern Indonesia. The data was collected in 2022. It combines annotated and unannotated legacy materials from as far back as the 1920s with data from fieldwork conducted in 2022 (Visser, University of Oslo).

The Lab also collaborated with the research platform, *Digital Integration Across Disciplines* (DIAD), which aims to set a new standard in the creation of digital cultural heritage records (Burenhult, Dell'Unto). In 2023, technical development continued with a procedure to generate ELAN files by combining results from speaker diarisation (that detects and timestamps unique speakers in audio) and speech recognition (OpenAI Whisper that provides word-level timestamps), and a tool that uses such annotated ELAN files as a temporal filter on synchronised eye-tracking data to find focal points (Campanaro, J. Larsson).

TEXT-LANGUAGE RESOURCES AND SWE-CLARIN

Most scholars in the Humanities and Social sciences work on and with text in various formats, but interest in the use of computer-based tools for text analyses is growing very quickly beyond these disciplines. For example, there is substantial interest in OCR technology to enable the search and tagging of scanned texts, in sophisticated tools for searching, processing, and analysing texts, or for creating corpora (structured and annotated collections of materials). The increased attention given to generative Artificial Intelligence has further boosted the interest in text and speech technology.

LU Humanities Lab is a member of the Swedish national infrastructure for language resources and technology, Nationella Språkbanken & Swe-Clarin. This national e-science consortium, funded by the Swedish Research Council until 2028, is itself a part of the European Research and Infrastructure Consortium Common Language Resources and Technology Infrastructure (CLARIN ERIC). CLARIN provides access to (contemporary and historical) language-and-text-based material, and to tools for exploring and investigating such data. Since 2020 the Lab is a C-centre, a CLARIN Metadata Providing Centre, which provides so-called CMDI metadata (Component MetaData Infrastructure) via the Archive server to CLARIN's Virtual Language Observatory (VLO). The Humanities Lab is also a certified K-centre, a CLARIN Knowledge Centre for Multimodal and Sensor-based Data (CLARIN- MULTISENS), supporting researchers and educators with both advice and practical implementations in this domain such as means to extract and store information, learning or training activities, including in data-driven analysis methods.

In 2023, the Lab's language technology experts were involved in several projects. For example, one project developed an offline version of SWEGRAM (a web-based tool for automatic annotation and analysis of Swedish texts). The need for an offline version arose due to the sensitive nature of the data (medical journals) which required analysis to be possible on a computer not connected to the Internet (Smålander). In another new project, Lab members worked in a project to develop automated information extraction tools (see highlight; Aits, Kazemi Rashed, Ahmed, Berck). In a continuing project, the Lab (Frid) collaborated with the University of Florence (Cacioli) to combine automatic speech recognition with phonetic alignment of speech material in Swedish in order to produce phonetic transcriptions of recorded sentences.

Some projects drew on the resources at the National Academic Infrastructure for Supercomputing in Sweden

(NAISS). One project used these resources to explore the possibilities of deriving high-quality information from large collections of language related material through statistical pattern learning. Using GPUs through the Huggingface transformers library facilitates the use of many state of the art algorithms, methods and models related to processing of language material (Berck, Frid, J. Larsson).

The Lab's engagement with the scientific community locally and internationally also involved conference presentations and invited talks, for example at the CLARIN annual conference that took place in Leuven, Belgium, and at the LU eScience Hub.

KEYSTROKE LOGGING

Keystroke logging is a technique that enables a writer's keyboard and mouse activities to be recorded in realtime during text production. The writing session can be replayed and analysed in detail to show how the process of writing may differ from the final text. Lab members past and present have been involved in the develop-

ment of the keystroke logging program ScriptLog (Frid, V. Johansson).

A continuing collaborative project between Lund, Kristianstad, and Gothenburg University (V. Johansson, Wengelin, K. Gullberg, R. Johansson, Frid) continued to explore how writing processes may differ between accounts of self-experienced and invented events. Moreover, an integration of ScriptLog and contemporary eye-trackers was developed to allow for the simultaneous recording of the writing process and eye movements during the reading of the text written (K.Gullberg, Frid). This project also led to discussions of workflows for data collection and analysis.

The Lab's collaboration with the National Academic Infrastructure for Supercomputing in Sweden (NAISS) allowed a new project to harness Swedish Science Cloud (SSC) resources to further develop the web-based version of ScriptLog. The current version runs on SSC and was developed for a Lab project that necessitated the transformation of the standalone tool into a web-based version to streamline large-scale data collection without the requirement for software installation, particularly beneficial in environments with administrative constraints, such as schools (Thomas). Although this current web-based version offers fewer features, it is more user-friendly. The new web application will expand current functionalities, for example, through the introduction of collaborative writing capabilities, where two or more participants access and modify the same document simultaneously. Moreover, the application will use statistical methods to analyze the data and identify trends and patterns in writing skills that will be presented to researchers in the form of visualisations, reports, and statistical summaries (Frid).

BIOPAC

The BioPac system measures a person's psycho-physiological reactions to events in the surroundings such as loud sounds or visual input. The current system consists of a galvanic skin response unit, a respiratory unit, a heart rate variability unit, and an airflow transducer.

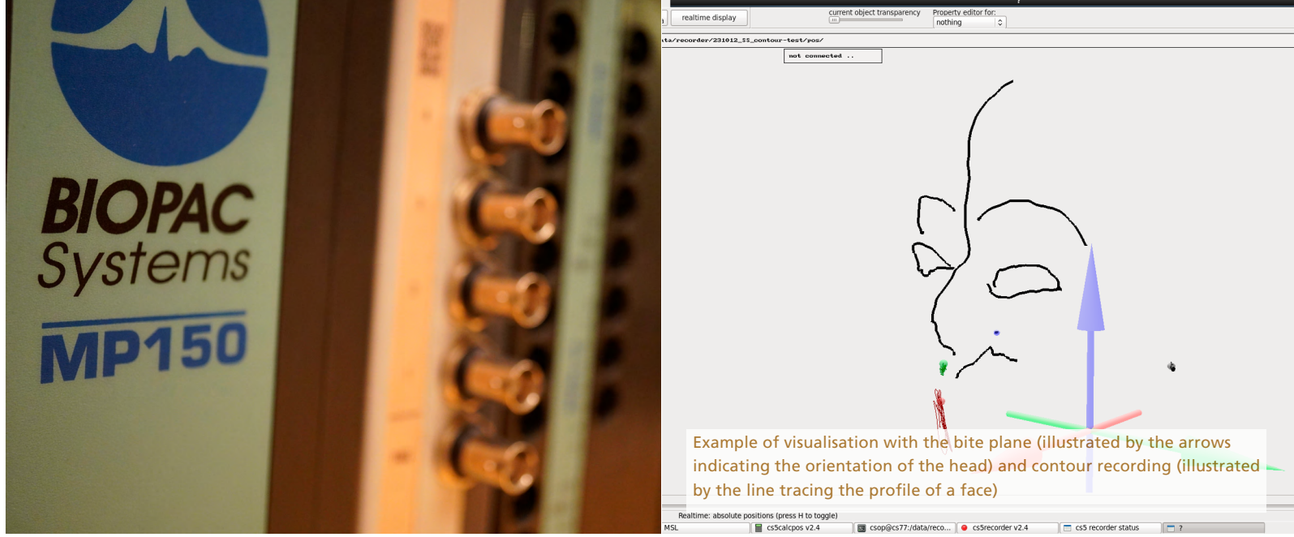
In 2023 the BioPac, and specifically the galvanic skin response unit and the heart rate variability unit, was used for a project on incidental stress responses to trauma and overgeneralization of fear mechanisms (Petersdotter, Miller, Johansson, Hammar).

The facility was also used in a methodological project where Lab members collaborated on parallel measurements of pupil size and skin conductance (van de Weijer, M. Nyström, Niehorster).

ELECTROMAGNETIC ARTICULOGRAPHY (EMA)

The Lab hosts two devices for electromagnetic articulography (EMA; AG500 and AG501). This technique records the movement of the tongue, the lips, the jaws (so-called speech articulators) in 3D with high spatial and temporal resolution through sensor coils in an electromagnetic field.

In 2023, the AG501 was upgraded with a bite plane, which enables the display of how the sensors move in relation to the head instead of in relation to the articulograph. This makes it possible to correct for any tilting of the head in recordings. It also facilitates the comparison of data across different subjects and sessions by providing a consistent frame of reference. Moreover, Lab members updated the facility by expanding the procedure for so-called contour recording used to trace the palate. In this expansion a sensor is placed on the thumb that can then trace the profile of the speaker's face, which allows for a fuller visualization of the EMA data. The steps needed for bite plane use and contour recording have been added to our documentation, for example to user check lists and materials for tutorials. Finally, an on-site freezer was installed in the Lab to ensure optimal storage possibilities for the tissue glue needed to attach sensors to the articulators.



Example of visualisation with the bite plane (illustrated by the arrows indicating the orientation of the head) and contour recording (illustrated by the line tracing the profile of a face)

Over the course of the year the facility was used in a continuing project in phonetics that explores how different conditions of so-called focus in discourse affect the relationship between articulation and acoustics (Svensson-Lundmark, Frid).

Local engagement included presenting the facility at the event entitled Get to know HALOS, LBIC & the Humanities Lab at the Faculty of Medicine.

AUDIO AND VIDEO FACILITIES

THE LARM STUDIO provides professional audio and video recording facilities as well as a set of musical instruments. Users also have the support of our research engineer with a speciality in audio and video production (Roslund).

In 2023 the studio saw a number of upgrades. The NEVE audio mixer was repaired and serviced. Additionally, the studio was upgraded with new cameras, sound equipment and computers. This includes innovative equipment, like the Røde NT-SF1 SoundField Ambisonic Microphone, capable of generating a complete 360° soundscape with precise head tracking. This technology is particularly valuable for immersive video production and presentation, such as in Virtual Reality environments. Moreover, the Sony HT-A9 surround sound system was added to the facility. Hardware upgrades further included a new studio condenser microphone, the Røde NT1 5th Generation. This microphone provides cutting-edge technology, offering "unclippable" 32-bit float digital output and advanced digital signal processing. It can, for

User project

OCD

Artist Tim Bishop and singer Hedvig Becke collaborated on an artistic project resulting in the sound and VR180 installation *Inside*, presented in the Lab's anechoic chamber. Based on interviews with Obsessive Compulsive Disorder (OCD) sufferers, *Inside* aimed to present OCD as a subjective, complex and nuanced disorder. The installation received positive feedback expressing a strong desire for the artists to show the work to more people who could benefit from the experience. From visitor comments it was clear that the work succeeded in meaningfully presenting OCD from the perspective of sufferers to people without OCD. As an art project, it created possibilities for Bishop and Becke to explore the use of VR visuals with spatial sound in a physically secluded space, and the anechoic chamber added to the experiential effect of the perspective they hoped to achieve.

example, seamlessly record both whispers and screams in the same audio file.

In October, 2023 the studio had to be closed due to a leak. No technical equipment sustained damage but both floor and ceiling needed to be replaced. The studio opened again in January 2024.

In 2023, the LARM studio was used in several new projects. For example, in a MA-project, videos were edited to move speakers' gestures so that they either did or did not align with the content of what was being said (Holmer, Gullberg, Nirme). In another new project, the LARM studio's expert (Roslund) advised on possible audio set-ups for an experiment investigating speech monitoring (Lind). In an ongoing project on vocabulary learning, the LARM studio was used to record words in an old Finnish dialect that will be used as stimuli in word learning experiments (Nirme). The facility was also used in a PhD project examining the visual properties of speech, and was used specifically to improve the quality of old video materials (Springer).

Several scientific podcasts series made use of the studio to record episodes. This included audio podcasts such as *Bildningspodden* (SU), *Filosofernas podcast* (LU), *Höresund* (LU), *Englished* (LU). In addition, the national Swedish Radio regularly used the studio for interviews with researchers at LU (e.g. P1 Historia). Moreover, the facility was used for an international online conference, the *Symposium in Honour of Adam Kendon* (M. Gullberg, Graziano, Seyfeddinipur; see p 32), as well as to record voice-over for presentation videos about the national research infrastructure Huminfra.

THE ANECHOIC CHAMBER enables top quality audio recordings, eliminating 97,5% of the echo through the use of a specific wedge-shaped foam structure covering walls, ceiling and floor.

In 2023, the anechoic chamber was used in an artistic project on experiences of Obsessive Compulsive Disorder, OCD (Bishop, see highlight p. 14). A new project used the facility to record stimuli for an EEG study on prediction of upcoming information in the speech signal (see also Research EEG). In an ongoing project, the anechoic chamber was used to record stimuli for a study on vowel discrimination in second language learners of Swedish (Splendido). A continuing artistic project also used the facility to explore the interplay of voices, emotion, and silence (Magnusson).

3D SCANNING/VIRTUAL REALITY (VR)/GIS

The use of 3D scanners and the visualisation of the data they generate through Virtual Reality techniques continued to develop in 2023 with a focus both on data acquisition and method development.

In collaboration with the Swedish Institute at Athens (Wallensten) and the Austrian Academy of Sciences (Blid), the Lab (Lindgren) 3D-scanned the remains of the Poseidon temple in Hermione, Greece. The purpose was to create a high-resolution model of the remains to be used as a starting point for a very precise virtual reconstruction of the ancient temple. 3D scanning was further used in a continuing project where the Lab (C. Larsson, Lindgren, Roslund) collaborate with the DARK Lab, at the Department of Archeology and Ancient History. The Lab assisted with 3D scanning and Reflectance Transformation Imaging (RTI) of the 500-year-old shipwreck *Gribshunden* outside Ronneby in Blekinge. RTI involves capturing a series of digital photographs of an object using a fixed camera position while varying the lighting direction. Through RTI researchers can obtain images that allow the observer to change the direction of the light in order to see fine details in surface structure, in

Continued on p. 18

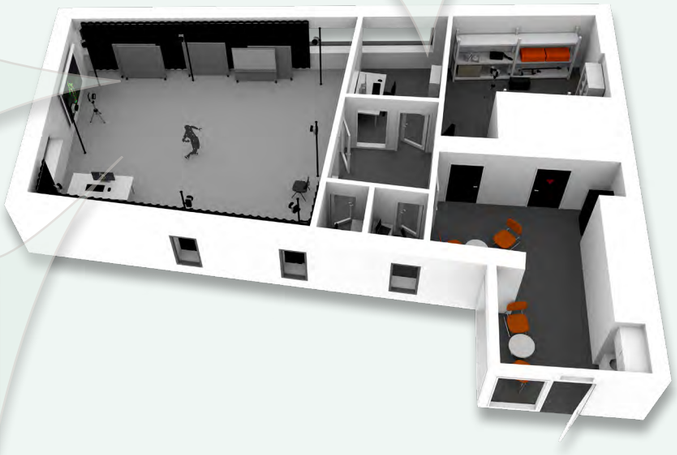
LARM-studio and MOCAP-studio @LUX


AUDIO & VIDEO


AUDIO & VIDEO


VIRTUAL REALITY


MOTION CAPTURE & 3D

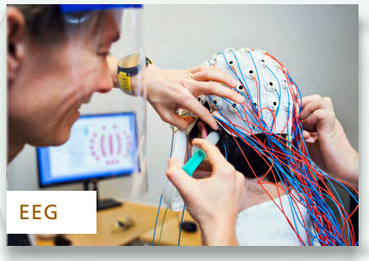


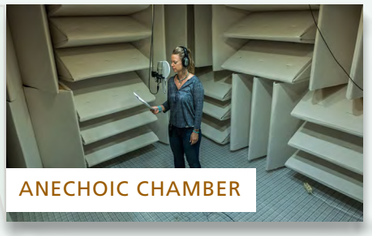

MOTION CAPTURE & AUDIO

Experimental studios @SOL


BIOPAC


EMA


EEG


ANECHOIC CHAMBER


EYE-TRACKING

the case of *Gribshunden* the old birch bark panels from the ship (Foley, C. Larsson, Lindgren, Roslund).

VIRTUAL REALITY In 2023 the VR facility saw the setup of a new VR development workstation with a Varjo VR-3 headset and Steam VR tracking system. Updates to the facility also included the development and documentation of workflows with support libraries for collecting eye-tracking and interaction data in VR, for both standalone and tethered (PC) VR headsets. In related development efforts, the open source library for collecting and visualising eye-tracking data in VR was adapted to support the hardware in the Lab. This update also enables a procedure that does not save user data to the cloud or relies on licensed products.

In an ongoing research project, VR was used to explore whether word learning is improved when adult learners manipulate objects also named during the learning process (Mårtensson, Nirme).

Collaborations with international scholars also continued. The Lab (Nirme) collaborated with the Universtity of Groeningen (Schüppert) in the analysis of eye-tracking data from a study on education in the learners' first or second language. The project used both VR and 360 video. In another language acquisition-related project, the Lab (Nirme) worked with a researcher from Università degli studi di Bergamo (D'Angelo) to develop scripts for the extraction of eye-tracking data from a Vive headset when running third party applications.

GEOGRAPHIC INFORMATION SYSTEM (GIS) The GPS-system was used in a new project that documents remnants of crofts and surrounding structures built in the north of Skåne 1650–1940 (Williamsson). The aim of the documentation was to investigate the factors that influenced the choice of location for the crofts, particularly factors related to elements of the surrounding landscape, such as larger buildings, hills and forests.

MOTION CAPTURE

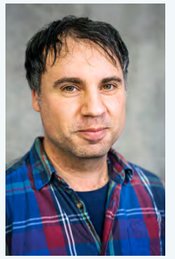
Motion capture is a technology that enables human bodily movements in 3D to be recorded with high spatial and temporal resolution. The Lab's setup consists of a Qualisys system with twelve high-speed infrared cameras and three high-speed video cameras. The infrared cameras detect and record the 3D position of reflective markers strategically located on a moving individual's body.

A new user project investigates the acquisition of procedural knowledge among neurosurgery students through the practice of medical procedures on anatomically accurate models, and the subsequent transfer of this knowledge to surgical interventions on human subjects (Iop, Garde, C. Larsson) The project combines Mocap and eye-tracking. Additionally, the Lab (Garde) contributed to methodological refinement as well as workflow implementation and conducted a preliminary recording pilot.

A continuing collaboration resulted in the release of the The Lund University Vision, Radio, and Audio (LuViRA) positioning dataset that includes data from vision, audio and radio systems, as well as highly accurate ground truth labels (Yaman, Tian, Larsson, Persson, Sandra, Dürr, Tegler, Challa, Garde, Tufvesson, Åström, Edfors, Malkowsky, Liu). The Lab's motion capture studio and expertise (Garde) was used to create the ground truth position data, with localisation errors of less than 0.5 millimeters. The main aim of this dataset is to enable

New Lab members

MARCUS AMASALIDIS



As an administrative assistant in the Humanities Lab, I have a multifaceted role. I am the point of contact for project leaders both at the beginning and end of their projects, and I archive all projects. I am also responsible for managing the allocation and removal of permissions for accessing Lab facilities. With nearly a year of experience in this role, I continuously strive to ensure smooth and efficient operation of Lab activities. Additionally, I am involved in supporting researchers and project leaders by providing resources and general assistance as needed.

JENS NIRME

I am a post-doctoral researcher with a shared position between the Humanities Lab and the Dept. of Design Sciences at the Faculty of Engineering. With a background in Cognitive science and Educational technology, I specialise in method development related to Virtual Reality and Motion capture in parallel with pursuing research interests in data visualization and non-verbal communication.

research that combines the most commonly used sensors for location tracking.

ELECTROPHYSIOLOGY

Electroencephalography (EEG) measures the electrical activity (field potentials) in the cortex through electrodes attached to the scalp. EEG was used in several projects, for example in a new project exploring the role of memory in language processing, specifically as it pertains to the establishing of reference between a pronoun and what it refers to (Klingvall, Heinat). Another new project investigated listeners' prediction of upcoming information and the relationship between predictive processing strategy, linguistic performance, and cortical structure (Hjortdal, Roll). A continuing project examined the processing of spoken language, specifically the case of negated information (Farshchi).

The facilities were also used in two student projects at the master's level. One of the projects sought to explore the processing of pronouns in English (Hermansson). The other project investigated whether listeners hear prosodic mismatches ('errors') more or less clearly when they can predict the word the mismatch occurs in (Nabrotzky).

MULTIMODALITY

Multimodal analyses of human behaviour (e.g., speech, gesture, head movements) continued to flourish in 2023.

Some studies examined crosslinguistic and cross-cultural aspects of speech and gestures. For example, an ongoing project compared Swedish and Italian speakers' use of gesture in storytelling (Graziano, M. Gullberg). New projects included a collaborative study with Kiel University which examined how phonetic properties and manual gestures contribute to a sense of alignment in Swedish conversation (Rossi, Zellers, Graziano). A PhD project examines the role of visual information from the lips for speech comprehension. (Springer, Garde, Splendido, M. Gullberg)

Other projects focused on multimodality in language acquisition or bilingualism. A MA project in Cognitive science examined how English-Mandarin Chinese bilinguals process multimodal expressions of time in their two languages using a priming paradigm (Holmer). Since the two languages conceptualise time along different spatial axes, vertically in Chinese and laterally in English, the gestural dimension was of particular interest. M. Gullberg's Wallenberg Scholar project *Embodied bilingualism* also continued to investigate a range of language-gesture pairings, including Swedish, German, English, French, Turkish (Christensen). Work also continued on a joint project with University College London examining whether adults can break into sign language after only a few minutes of exposure and with no training (Marshall, Janke, Hofweber, Aumônier, M. Gullberg). Results show that adults can indeed recognise signs from a continuous stream of signing and assign meaning to them. In this, they are helped by the frequency of signs and the resemblance between a sign and the thing it refers to in the world. Generalising features of structural regularities (phonotactics) is more difficult and show less robust effects than similar tasks for speech. A new line of work also examines conventionalisation or the process whereby spontaneous gestures can become more sign-like (Janke, et al.)

User project

AUTOMATED INFORMATION EXTRACTION

The literature in the life sciences has grown to over 40 million articles making it impossible to process for humans. Yet, precisely because of how vast this body of work is, consolidating knowledge dispersed across the articles holds the potential to yield particularly valuable insights. These insights could inform future research endeavors but also facilitate the development of new medical treatments. In the project *Mining the life science literature* (Aits, Ahmed, Kazemi Rashed, Berck), researchers draw on language technology to create a so-called knowledge graph of domain-specific entities (e.g. proteins) related to cell death. The project uses named entity recognition (NER) and relation extraction methods. To handle the large amounts of data, the models are trained on HPCs at the National Academic Infrastructure for Supercomputing in Sweden (NAISS) using the Berzelius super cluster. The project's knowledge graph will be used to enhance and evaluate insights gained from microscopic image analysis. Moreover, importantly, the project will make its large-scale biomedical natural language processing (NLP) tools accessible to other researchers in other domains.

Work with motion capture and other sensor-based techniques such as the use of motion capture and virtual reality also continued. A collaboration with KU Leuven, Belgium, used motion capture to create experimental materials to examine experimentally how first language speakers adapt to conversational partners who are second language speakers (Oben, Prové, Garde, M. Gullberg). A new project in collaboration with the Basque Center on Cognition, Brain and Language similarly used motion capture of 24 speakers' to create stimuli for a brain imaging project seeking to understand whether watching a conversational partner's gestures can entrain the brain in similar ways to speech (Pastureau, Garde). The project also develops a new Python tool to process and examine output from motion capture to study the relationship between gestures and speech.

Multimodality also featured in teaching and training. Lab members contributed to instruction on methodology for multimodal data analysis through tutorials on ELAN, a tool for annotating speech and gesture data (Graziano). Lab members also taught in the MA course in Linguistics, *Language in the visual modality – from gesture to sign*, in the spring semester (M. Gullberg, Graziano, Garde). They also supervised international MA and PhD students working on multimodality (Belgium, Germany, South Africa; Graziano, M. Gullberg), and acted as external examiners of PhD theses on multimodality (M. Gullberg). Furthermore, the online seminar series on multimodality, the *Gesture seminar* (M. Gullberg organiser), continued in 2023. Thirteen seminars were held with international scholars regularly attending, and several Lab members in regular attendance (Frid, Garde, Graziano). Lab members also organised (Gullberg) and attended a workshop supported by the profile area *Natural and Artificial Cognition, Video recorded behavioural data and the potential for automated analysis* (Garde, Graziano). In addition, Lab members (M. Gullberg, Graziano, Garde, Frid) presented multimodal work at several international conferences, such as *Eurosla* 2023, the *18th International Pragmatics Conference*, 2023, the *Gesture and Speech in Interaction* (GESPIN) conference 2023, Nijmegen, NL, and the *First International Multimodal Communication Symposium,* Barcelona.

An international network dedicated to the study of *Gestures and Head Movement in Language* (GEHM), led from the University of Copenhagen, also held monthly online meetings in the period with Lab members as active participants and presenters (M. Gullberg in the steering committee; Graziano, Frid; see Collaborations).

Finally, a *Symposium in Honour of Adam Kendon*, the pioneer of gesture studies, was held in the LARM studio on 2023 (M. Gullberg, Graziano, Seyfeddinipur organisers; see p 32).

Award

Is it possible to measure tongue movement during speech? And which words do writers primarily focus on when composing text? These are questions addressed by Johan Frid, researcher at Lund University's Humanities Lab. In October 2023, he was awarded the Steven Krauwer Prize at the Clarin Conference in Leuven.

Frid serves as coordinator of the Lund node of Swe-Clarin, aiding researchers to implement and deploy tools for analysing linguistic data. Additionally, he oversees the Lab's Knowledge-center MULTI-SENS, an integral component of Clarin's infrastructure.

Collaborations

Lund University Humanities Lab and its members have thriving local, national, and international collaborations and networks. Those linked to individual scholars are too numerous to list here, but the Lab also has many institutional collaborations (cf. map).

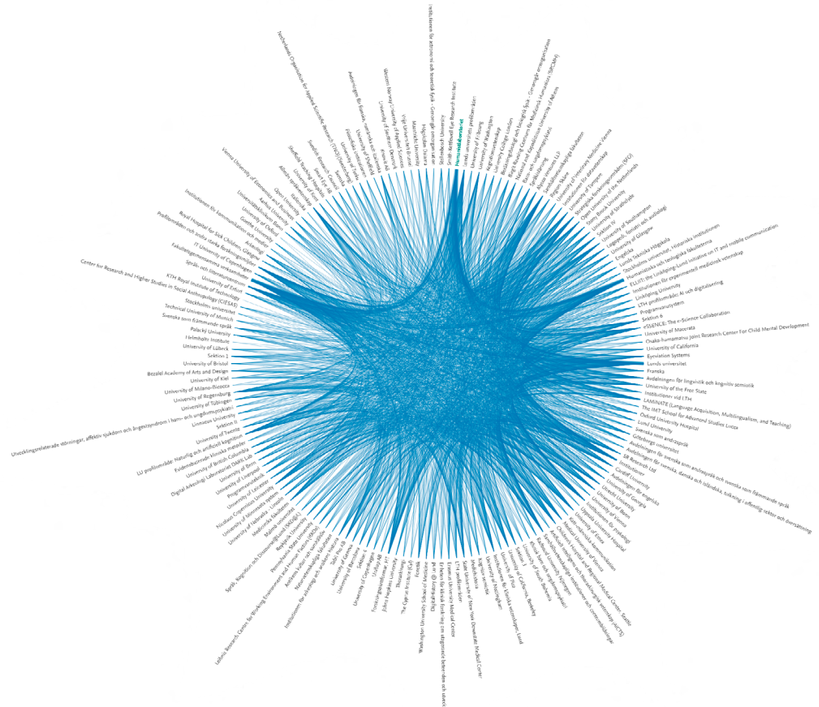
LOCAL. The Lab has many local collaborations across Lund University. Many are longstanding such as with the departments of Linguistics, Archeaology, Cognitive science, Design sciences, Biomedical engineering, Biology (cf. Research), Lund University School of Aviation and UAV@LU, the Strategic Research Area for e-Science eSSENCE, LU Center for Scientific and Technical Computing (LUNARC), Lund Bioimaging Centre, the network AI Lund, etc. Other local activities in 2023 included engagement with the Science Village Scandinavia (SVS) enterprise. Lab Member Petersson collaborated with the project team of the future Lund Science Centre. Lab members were also engaged in a so-called Flagship project 2023 funded by the Swedish National Data Service under the leadership of Lund University Library investigating how to best ensure maintenance and continued access to digital research data and databases. Gullberg served on the steering committee of this project.

In the domain of e-Science, local collaborations continued (see also under National collaborations), both in terms of projects and training. The collaboration with Lund University Bioimaging Centre continued through Mårtensson whose biannual course on MRI for participants without a background in medicine is intended to recruit new users and forge stronger connections between the Humanities Lab and other groups at LU interested in the brain. As a further step in the process of connecting the Lab to local areas of expertise, the Lab also recruited a shared postdoc with the Design Sciences (Nirme) whose time is divided between the Lab and the academic department.

The Lab and its members were also engaged in the so-called profile areas at Lund University, especially Natural and Artificial Cognition – *1, 2, many* (Åström, M. Gullberg, Bäck, Davies) with funding until 2024. This profile area brings together researchers from Engineering, Humanities and Theology, Social sciences, Medicine, and Science to study connections between animals, humans, and robots. The Lab is one of the key infrastructures for the profile area. In 2023, a range of activities involved Lab members, including a workshop *Natural and Artificial Cognition II*, the so-called *NAC Days* with seminars and member meetings, securing funding for and hosting a workshop on *Video recorded behavioural data and the potential for automated analysis* (Gullberg, Åkesson, Schötz, Nilsson, Runeson, Wisbrant).

NATIONAL collaborations were numerous. The Lab is deeply engaged in national research infrastructures (see p. 28-29). The Lab leads the national research infrastructure for the Humanities called Huminfra (M. Gullberg director of the infrastructure, Blåder, Björck in charge of communication and the web platform, respectively), with funding from the Swedish Research Council and the 12 participating nodes distributed across 11 universities and organisations for a first period 2022-2024. Huminfra supports digital and experimental research in the Humanities by providing users with a single entry point for finding existing Swedish materials and research tools on the platform huminfra.se, as well as by developing national method courses. The website was launched on schedule in 2023, and is continuously updated with new information. Huminfra also launched a social media account on LinkedIn and a monthly newsletter. In its first year, the website had over 3,000 unique visitors. Huminfra organized over 20 training events, some held jointly online and on site in two locations simultaneously (a workshop in photogrammetry arranged simultaneously on-site at Umeå and Linnaeus University). A public webinar on AI and research in the Humanities was held in the autumn. Importantly, in 2023 the infrastructure applied for and was awarded extended funding 2025-2028.

The Lab is a node in several other national infrastructures. It is a node in the national consortium *Nationella Språkbanken* and *Swe-Clarin,* itself part of *CLARIN*, the *European Common Language Resources and Technology Infrastructure*. Swe-Clarin links nine Swedish institutions around issues of language technology, including the *Swedish National Data Service* (SND). As a national node and an accredited Knowledge Centre, the Lab provides tools and expertise related to language archiving, corpus and (meta-)data management, assistance with sensor-



based methods, and speech and language technology. The local coordinator (Frid) was involved in a range of projects in 2023 (see Research) in addition to consulting on issues of language technology. Lab member (Berck) also contributed to this work.

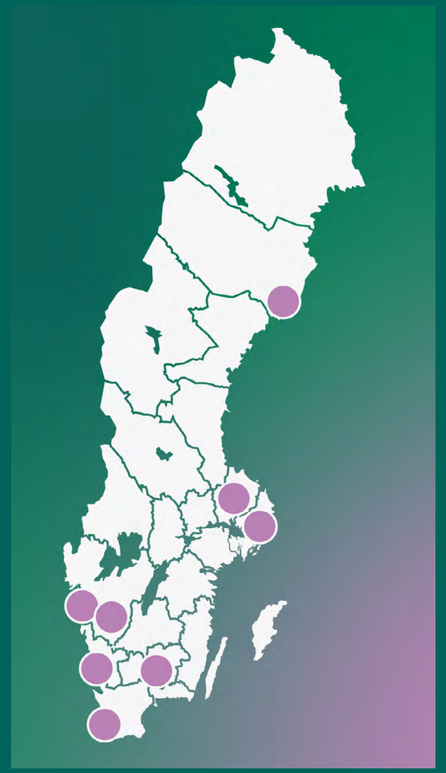
As of 2022, the Lab is participating member of two other national infrastructures of relevance to the Humanities: a *National Research Infrastructure for Visualisation of Data* (*InfraVis*) led by Chalmers University of Technology (M. Gullberg, Garde), and the *Swedish National Infrastructure for Digital Archeology (Swedigarch),* led by Uppsala University (Lindgren). These held a number of events in 2023 which involved Lab members (see p. 29). The Lab is also linked to the Swedish National Data Service (SND), a national infrastructure for research data with a mission to support the accessibility, preservation, and reuse of research data and related materials. M. Gullberg serves on the steering committee.

National collaborations further involve strategic research areas. The Lab continued its partnership with *eSSENCE*, the national Strategic Research Area and programme in e-Science, involving the universities of Uppsala, Lund, and Umeå. The overall enterprise focuses on the development of tools for handling, storing and retrieving research data in digital form. M. Gullberg is a member of the Lund steering committee. Core elements are data flows, large databases, heavy data computation, and data visualisation, achieved with the assistance of the *Lund University Center for Scientific and Technical Computing* (LUNARC; Gullberg member of the executive board), and to a certain extent with the *National Academic Infrastructure for Supercomputing in Sweden* (NAISS). Lab members regularly contributed to *COMPILE*, a common web site for research, education, and infrastructure related to Science and e-Infrastructure at Lund University.

INTERNATIONAL. The Lab has several longstanding international collaborations. For example, in the field of 3D scanning, the Lab has several collaborations through its members (Lindgren, C. Larsson, Landeschi) which include the *Swedish Institute at Athens, CNR-ISTI* in Pisa, and *Institute of Heritage Science* in Rome. In the domain of eye-tracking, long-standing collaborations with universities in the Netherlands, Germany, and Finland continued to flourish and involved training and research activities in 2023, both online and on site in Lund. In the area of language documentation, data management and corpora, the long-standing collaboration continued with the *Max Planck Institute for Psycholinguistics* and *The Language Archive* (TLA) hosted there. The Language Archive develops software and archiving solutions for the Humanities and languages in particular. In the domain of multimodality, the international network *Gesture and Head Movements in Language* (GEHM), funded by the Independent Research Fund Denmark (Paggio), continued its work linking the Universities of Copenhagen, Lund, Linnaeus, KTH, Leuven, Kiel, Barcelona, and Trinity College Dublin. A multimodal corpus of online meetings is one of the outputs from the network, as well as several joint projects involving Lab members, many of which were presented at the *First International Multimodal Communication Symposium*, held in Barcelona in 2023 (see Research).

In 2023 work continued on the software and hardware solution for management of digital research data, OMEKA-S, in a collaboration with the IT-unit at the Joint Faculties of Humanities and Theology (Lindgren). This work also links the Lab to the international network for OMEKA-S.

Finally, the Humanities Lab hosted many visiting scholars (16) in 2023, from all over the world for both short- and long-term stays, with numbers returning to pre-pandemic levels. Lab members also visited other institutions and gave invited talks about their own research both within and outside Lund University. However, online forms of exchange continued to complement physical visits. These have now become standard.



- Lund University Humanities Lab
- Humlab, Umeå University
- Digital Humanities, Linnaeus University
- Gothenburg Research Infrastructure in Digital Humanities, University of Gothenburg
- Språkbanken Text, University of Gothenburg
- Språkbanken Tal, Royal Institute of Technology
- Digital Human Science, Stockholm University
- KBLab, National Library of Sweden
- The Swedish National Archives
- Centre for Digital Humanities and Social Sciences, Uppsala University
- Swedish School of Library and Information Science, University of Borås
- Digital Laboratory Centre, Halmstad University

National infrastructures

HUMINFRA – A NATIONAL INFRASTRUCTURE FOR THE HUMANITIES

Huminfra is a distributed national infrastructure led by Lund University, which brings together 12 nodes across 11 Swedish universities and organisations in 8 geographical locations (see map) in the domains of experimental and digital Humanities.

In its second year, 2023, Huminfra launched the website huminfra.se, which collates and links to 219 Swedish research resources at the nodes (instruments, tools, expertise, materials, and training events), to other infrastructures, and to national ethics and data management expertise. Between June and Dec, the website huminfra.se had 3 200 unique visitors. The consortium also organised 59 training events, national and local (see p 32), with several co-hosted by two or more nodes. In addition, work preparing for Swedish membership in DARIAH-EU continued. Outreach activities also flourished and included the launch of a monthly Huminfra Newsletter to complement the social media accounts, and a public webinar on the role of AI for research in the Humanities. Finally, following a new application round, Huminfra was awarded extended funding from the Swedish Research Council 2025-2028.

HUM INFRA

SWE-CLARIN

As a node in the national infrastructure Swe-Clarin, the Humanities Lab actively engaged in a variety of Swe-Clarin's initiatives in 2023 (Frid local coordinator). These included practical text mining tutorials, demos, and collaborations with local projects focusing on the analysis of spoken and written corpora. The innovative research tool Scriptlog, a keystroke logging tool for the study of writing, was further developed to integrate eye-tracking, and launched its first web version. Furthermore, consultations were held on the effective use of speech technology for transcribing spoken content. The local coordinator (Frid) also attended a meeting at Nationella Språkbanken, and presented the Lab's so-called Knowledge-center activities at the CLARIN annual conference in Leuven, Belgium. He also attended the CLARIN Knowledge Infrastructure Committee workshop. Finally, the Humanities Lab featured in Nationella språkbanken's Profile of the month series.

SWEDIGARCH

The national infrastructure Swedigarch aims to enable new approaches to the use of digital methods in archaeology and to provide Swedish archaeologists with the option of incorporating such methods into their workflow. As a part of the infrastructure, the Humanities Lab (Landeschi, C. Larsson, Lindgren) helped create tutorials covering some of the techniques used. These tutorials are currently located at DarkLab webpage. This documentation work is also part of the development of a Lab-internal documentation-system for broader use.

INFRAVIS

The Humanities Lab's participation in the national infrastructure InfraVis centers on 3D motion capture and related workflows. In 2023, know-how was developed and shared within the infrastructure. The Lab (Garde) was instrumental in resolving InfraVis visualisation tasks, such as those pertaining to the acquisition and transmission of procedural knowledge in surgical training (Garde, Iop). Efforts include streamlining workflows, catering especially to national users bound by travel and time constraints. Regular engagement online and on site with local and national visualisation experts and coordinators was a priority (Garde, M. Gullberg), including attendance at biannual national InfraVis Days with intensive workshops (Garde). Additionally, the Lab contributed to outreach and networking through visualisation related talks (Garde, M. Gullberg).

SWE-CLARIN Swedigarch InfraVis

Training, teaching & consultations

Training constitutes an important part of the Lab's activities. Training activities include PhD courses (=7.5 ECTs), group tutorials, guest lectures, as well as individual and group consultations. These are adjusted according to topics, needs, and audiences. The goal is to facilitate and increase users' access to the technological resources that require advanced methodological skills, and to enable interdisciplinary work within and across faculties.

PhD courses in the Lab typically run over a number of weeks, and focus both on broad methodological approaches such as programming or statistics, and on specific research technologies, such as eye-tracking. Courses normally include practical hands-on elements as well as theoretical and methodological components. In 2023, the Lab offered five such courses: *Statistics I* (van de Weijer), *Eye-tracking* (Niehorster, M. Nyström), *Programming for the behavioural sciences* (M. Nyström, Garde) and *MRI* (Mårtensson). The participants represented a wide range of subjects such as General linguistics, Cognitive science, Psychology, Diagnostic radiology, Sociology of law and Logopedics.

Group tutorials were offered on several topics, both online and on campus. The 25 tutorials offered in 2023 included topics such as audio recording in the LARM studio (Roslund), BioPac (van de Weijer), data analysis with R (van de Weijer), ELAN (Graziano), electromagnetic articulography (Schötz, Frid), GPS (Landeschi), 3D documentation techniques (Lindgren) practical text mining (Frid), PsychoPy (M. Nyström, Garde), social network analysis (M. Johansson), video recording and editing (Roslund). Participants in the the tutorials came from a wide range of departments at Lund University and beyond, for example Media and communication studies, Cognitive science, History, Archaeology and Film studies.

The Lab continued to offer a commissioned course: A Practical Introduction to Eye-Tracking (Niehorster, M. Nyström). The course was given twice in 2023. Spanning over three days in June and November-December, respectively, the course gathered some 30 participants from Academia and industry.

Lab members further gave individual lectures or teaching modules as part of courses at the undergraduate level given by other units at LU. In 2023, such training activities included eye-tracking (Niehorster for e.g., Strategic communication, Biomedical engineering and Psychology), audio book recording (Roslund), 3D scanning and modelling (C. Larsson).

Additionally, Lab members participated in training events on a range of topics organised by national infrastructures, for example on 3D scanning pipelines for Swedigarch (C. Larsson), and on experimental methods in the Humanities for Huminfra (M. Gullberg, Frid, M. Nyström, Niehorster, Graziano, van de Weijer, Arndt, Roslund, Garde).

Consultations with experts are another corner stone of the Lab's activities and support. They offer Lab users targeted advice on specific research problems and are often related to the use of specific software, technologies or analysis methods. As such, they play an important role in refining research methodologies and optimising experimental procedures. In 2023 Lab members provided 106 such consultations on a wide range of topics and software (see Highlight for examples).

Advice on statistics and methodology is an important part of the consultation work. The Lab (van de Weijer) provides highly sought-after statistical advice. In 2023, new projects seeking such support included investigations into Japanese sentence intonation (Ishihara), gender inflection within Italian compounds (Lami), compound processing in Italian (Lami), and the interpretation of generic statements (Bowker).

Finally, the Lab was consulted on strategic and practical issues concerning the building and organisation of infrastructures, for example by *Multiling* in Oslo, *KBLab* in Stockholm and the *Movement and Reality Lab* (MoReLab) at LU.

CONSULTATIONS IN 2023

- AI methodology (Garde)
- BioPac (van de Weijer)
- Motion capture, VR and 3D techniques (Larsson, Lindgren, Garde)
- EEG set up, recording and ERP filtering (Garde)
- Eye-tracking (Nyström)
- Pseudoword synthesis (Frid)
- Python scripts (Garde)
- Specialised photography (Roslund, Lindgren)
- Recordings in the anechoic chamber (Schötz)
- Electromagnetic articulography (Schötz, Frid)
- Transcription of audio files (Berck, Frid)
- Topic modelling (Berck, Frid)
- Sound and video recording and editing (Roslund)
- Scraping TikTok (Berck, Frid)
- UX design (Garde)
- ScriptLog (Frid)
- Praat (Frid, Schötz)
- MATLAB (Garde)
- Psychopy (Garde)
- Statistical advice (van de Weijer)

Organisation of workshops and symposia

ONLINE SYMPOSIUM IN HONOUR OF ADAM KENDON

To celebrate the life and work of Adam Kendon, a pre-eminent and pioneering scholar of Gesture studies, the Lab hosted an online symposium in the form of a webinar, free for all to attend (M. Gullberg, Graziano, Seyfeddinipur organisers). The webinar was broadcast from the LARM studio. Thirteen prominent invited speakers spoke live from four time zones (Australia, the US, various European countries) to pay tribute to Adam Kendon's legacy and his influence on their work. The symposium had 153 online attendees.

INTRODUCTION TO EXPERIMENTAL METHODS IN THE HUMANITIES

This workshop gave an overview of a wide range of experimental research methods in the Humanities. It was held in collaboration with the national infrastructure Huminfra. Through practical hands-on sessions the workshop provided an introduction to motion capture and 3D work, eye-tracking, language technology tools, the Rxperience Sampling Method, and high-tech audio/video equipment.

INTRODUCTION TO 3D-DOCUMENTATION

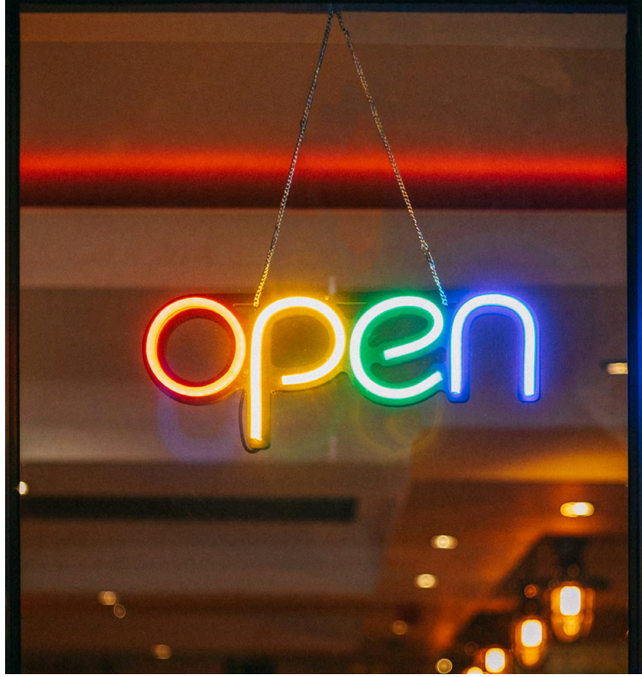
This half-day workshop was an introduction to 3D-documentation using 3D-scanning and/or photogrammetry. The workshop gave participants the opportunity to try different technologies currently used in 3D-documentation work. The workshop consisted of a short introduction to 3D-visualization, to 3D-scanners, and image-based modelling.

Visibility, access, outreach

Every year, the Humanities Lab hosts multiple events for local, national and international visitors across a range of domains. In 2023 a total of 43 demos were organized, seven of which were online. These gave an overview of the research facilities and the on-going research, often adapted for the targeted audiences and purposes. Visitors included national and international researchers and students as well as Estonian business representatives and a delegation from Taras Shevchenko National University of Kyiv.

Lab members also gave invited talks at local, national and international venues on various topics, for example "Differences between Italian and Swedish gesturing: beyond stereotypes!" (Graziano), "NLP, language data and speech technology" (Frid), "Virtual Reality and Workflow" (Garde), "Video recordings of human behaviour" (M. Gullberg), and "Get to know the Humanities Lab" (Schötz).

The Humanities Lab further participated in events in both academic and popular contexts. Many of the talks demonstrated technologies and activities in the Lab, as well as research. For instance, the Lab participated at *Unexpected, Lund Arts and Science Innovation Forum* (Garde), in the panel "Lund Innovation District" at *Lund EU Days* (Splendido), at *HT dagarna*, an outreach event organized by the Joint Faculties of Humanities and Theology (Lindgren, Petersson, Splendido), and at the *Welcome days* for new empolyees (Splendido).



Finally, the Lab conveyed information about activities on its website and on LinkedIn with regular updates on research, events, grants, and awards. The Lab's website is continuously updated and reorganised with the aim of making information accessible and clear to different audiences and groups of users. Information about policies, access, user agreements, etc., are available on the web. The Lab also has a newsletter sent to all users on a regular basis.

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Johan Frid
Local Coordinator Swe-Clarin
Researcher

Henrik Garde
Systems Developer
Health and Safety Representative

Maria Graziano
Researcher
Educational Developer

Marianne Gullberg
Director

Mathias Johansson
Research engineer
Digital History @Lund

Giacomo Landeschi
Research Engineer

Carolina Larsson
Systems developer

Jens Larsson
Systems developer

Stefan Lindgren
Research Engineer
Purchasing Coordinator

Johan Mårtensson
MRI Liason Officer

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