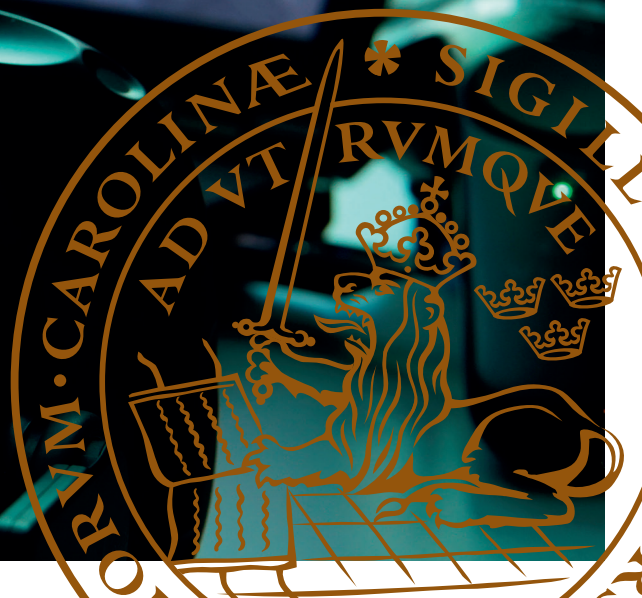




LUND  
UNIVERSITY

# Annual Report

LUND UNIVERSITY HUMANITIES LAB | 2018





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Lund University Humanities Lab | Annual Report 2018

Cover Photo: Henrik Garde

The PDF version contains hyperlinks to resources

# Welcome to the Annual Report of Lund University Humanities Lab 2018

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**MARIANNE GULLBERG,  
DIRECTOR**



We are a department for research infrastructure at Lund University open to researchers, teachers, and students across Lund University and beyond. In facilities located in the buildings of the Joint Faculties of Humanities and Theology we host technology, methodological know-how, data management, and archiving expertise.

Our mission is to facilitate research, and Lab activities are centered 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. Importantly, we are also an arena for contact and collaboration between academia and external stakeholders in education, industry, and cultural institutions – locally, nationally, and internationally.

In 2018 the Lab had a record number of users, initiated new collaborations and continued ongoing ones, offered numerous courses and tutorials, and hosted a string of visitors and groups. We hosted workshops and meetings on everything from eye-tracking to how to

code gestures, how to build web-based experiments, and on the visualisation of articulatory data. We recruited a new Lab member with expertise on 3D data and GIS, a new pedagogical developer, and we intensified our collaboration with Lund Biomedicine Centre through our liaison officer. We participated in university-wide discussions about the treatment of research data, and in national hearings on the needs of research infrastructures for the Humanities and Social sciences.

We were also lucky enough to receive a generous donation from the Einar Hansen Allhemsstiftelse to secure an upgrade of the LARM studio. We are deeply grateful for this support.

This Annual Report 2018 showcases some of the Lab activities highlighting that the Humanities Lab remains a dynamic and exciting environment where researchers can tackle new scientific challenges.

## The Dean's introduction

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The Joint Faculties of Humanities and Theology are proud to serve as hosts to Lund University Humanities Lab. A leading research and training facility, the Humanities Lab has become a key infrastructural unit at Lund University. Since its official opening in 2007, the Lab has inspired scholars in the Humanities and Theology to develop totally new approaches to challenges encountered in their research. Many of our disciplines now rely on the Humanities Lab as a fundamental component in their research with an increasing emphasis on digital tools, computational power, and mixed methods. We are also proud that the Humanities Lab has become a vital part of research conducted at other faculties. Researchers from all over the world collaborate with colleagues at and through the Lab. Lund University Humanities Lab is a vigorous interdisciplinary research unit where scholars and students come together in a uniquely exciting and highly productive environment.



**Johannes Persson**  
*Dean of the Joint Faculties of  
 Humanities and Theology*

## Organisation

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The Lab functions as an autonomous department, sorting directly under 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, such

as grants from the strategic research area for e-Science, eSSENCE, and the consortium Swe-CLARIN. Finally, it exceptionally hosts projects with grants and research groups located in the Lab. Examples in 2018 include *LANG-KEY* (Burenhult), and *Embodied Bilingualism* (Gullberg).

# Leadership

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## STEERING COMMITTEE



### **Director of the Humanities Lab – 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. She previously headed a research group on multilingual processing at the Max Planck Institute for Psycholinguistics with Prof. P. Indefrey, and is a co-founder of the Nijmegen Gesture Centre with Prof. A. Özyurek, the first of its kind. Her current research targets multimodal bilingual language processing, the earliest stages of implicit language learning, and bimodal discourse cohesion. She is the recipient of a Wallenberg Scholar Grant.



### **Deputy director – Victoria Johansson**

Victoria Johansson is associate professor and senior lecturer of Linguistics at the Centre for Languages and Literature. Her research focuses on language development through the lifespan, with special focus on language production and writing development, including developing research methodologies using keystroke logging and eye tracking.



### **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. In this, he works closely with archeologists and historians, but also cognitive scientists, and linguists.



### **Administrative Coordinator – Maja Petersson**

Maja Petersson is administrative coordinator in the Lab. She is responsible for monitoring action plans, policy and procedure to optimise project management in the Lab. She is also responsible for communicating about the Lab internally and externally.

# Brief facts

IN 2018, THE LAB HAD APPROXIMATELY 500 USERS AND 60 PROJECTS, 37 OF WHICH WERE NEW IN 2018.

## 500 LAB USERS FROM:

- Lund University
  - Joint Faculties of Humanities and Theology
  - Faculty of Science
  - Faculty of Engineering
  - Faculty of Medicine
  - Faculty of Social Science
  - Faculty of Fine and Performing Arts
- Other Swedish universities
- International universities
- Industry

In 2018, the Lab organised **30 tours and demos** for both national and international visitors.

The lab offered **PhD courses** on experimental design and statistics in 2018 and several **group tutorials** were given on *video recording, editing and video production, the use of Virtual Reality in computational research*, and the use of the software *ELAN for video annotation*. Other software tutorials given were *Psychopy* and *R for non-statistical use*.

## SOCIAL MEDIA FOLLOWERS IN 2018

 +  = **800\***

\*100 more than in 2017

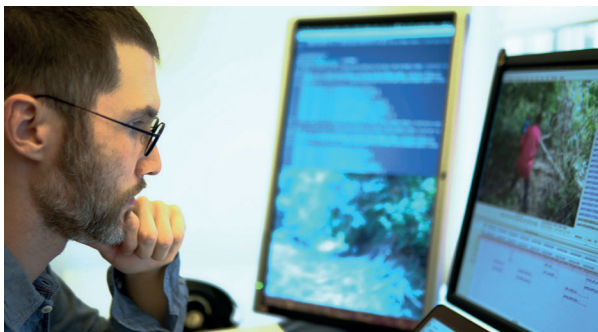
## 198 CONSULTATIONS

Individual or group consultations are an important part of the training provided in the Lab. They often focus on specific research problems related to the use of specific software, technologies, or analysis methods. In 2018 **198** such consultations were provided, almost twice as many as in 2017.









## Research

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### TEXT-LANGUAGE RESOURCES, SWECLARIN

Most scholars in the Humanities and Social Sciences work on and with text in various formats. Interest is growing for the use of computer-based tools for text analyses, ranging from OCR technology to make it possible to search and tag scanned texts, to sophisticated tools for searching, processing, and analysing texts, or for creating so-called corpora (structured and annotated collections of materials).

LU Humanities Lab is a member of the Swedish national consortium for language resources and technology, [Swe-CLARIN](#) (see [National and international collaborations](#)). This national e-Science consortium, funded by the Swedish Research Council (*Vetenskapsrådet*) until 2024, is in itself a part of the European Research and Infrastructure Consortium *Common Language Resources and Technology Infrastructure* (ERIC CLARIN). CLARIN provides access to (contemporary and historical) language-and-text-based material. It also develops and supplies tools for exploring and investigating such data. The Swedish nodes specialise on different aspects of

language technology, but also form cross-node centres of expertise. For example, [DiaRes](#) is a multi-site node specialising in historic language resources. Since 2017 the Humanities Lab is a certified CLARIN Knowledge Centre with special expertise on multimodal and sensor-based language data, and it supports and collaborates with a wide range of projects guided by the local coordinator (Frid).

Research activities drawing on Swe-CLARIN resources in 2018 include data analysis and visualisations in the project *Diachronic Atlas of Comparative Linguistics*, (*DiACL*; Carling). This project develops and maintains an open access database of historical, comparative and phylogenetic data from 500 languages across 18 language families and three geographical macro-areas (Eurasia, the Pacific, and the Amazon). Further, in a collaboration between Medicine, Science and Humanities at LU, Clinical Studies Sweden, and Skåne University Hospital (Björk, Ekelund with participation by Frid, Ohlsson, et al.), the project *AIR Lund Chest Pain* aims to develop a decision support system based on text in medical journals (see



User projects p.20). The project makes use of and develops so-called natural language processes (NLP) methods and resources. It grew out of the Theme DATA at the Pufendorf Institute for Advanced Studies (Björk, Frid, Davies, Lassi, Åström; see [The Pufendorf DATA Theme](#)) under the rubric of *Discovery from the written word*. Finally, the project *Benchmarking Swedish Named Entity Recognition and Classification (NERC)* aims to develop a tool for finding and replacing Swedish names in written materials in order to anonymise (or 'pseudonymise') them. The filtering of names and anonymizing of text materials is becoming increasingly important, especially in light of the new legislation introduced in 2018 on Generalised Data Protection Regulation (GDPR). Scholars working on interview material, for example, will need tools for effective anonymisation. This work is done in collaboration with the Swe-CLARIN nodes in Lund, Gothenburg and Linköping. Tools developed are generally available via the Humanities Lab.

In 2018 Lund participated in four consortium meetings (Frid, Gullberg), contributed a blog post on the [Swe-CLARIN website](#) about Lund activities (Frid), and presented Swe-CLARIN-related work at four international conferences (Frid *et al.*).

## DATA MANAGEMENT AND CORPORA

The advent in 2018 of the new legislation General Data Protection Regulation (GDPR) highlighted the importance of long-term secure storage of research data in e-format. In addition, more general discussions concerning infrastructures and principles for research data storage, retrieval, and security intensified nationally in 2018. LU Humanities Lab participated in these discussions locally, nationally, and internationally (see [National and international collaborations](#)). One reason for the involvement is the so-called corpus server, housed in the Lab.

Corpora are structured and often annotated collections of materials. The corpus server is a facility for long-term secure storage of such research data. 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 corpus browser, while the actual data are password-protected. Data access is granted by data owners/depositors at four access levels. [The corpus server](#) thus enables data discovery, and serves as a means to connect and collaborate with researchers responsible for relevant collections. In 2018, the corpus server comprised 5TB of data, a figure expected to double in 2019.

Among the collections on the corpus server are a longitudinal corpus of child speech (Strömquist *et al.*) and a corpus of Swedish dialects (Swedia 2000; Eriksson *et al.*). The corpus server also hosts the *Repository and Workspace for Austroasiatic Intangible Heritage RWAAL* (Burenhult, Kruspe). This project, committed to the preservation and documentation of the languages and cultures of communities from the Austroasiatic language family, received further funding in 2018 through an infrastructural grant from the Bank of Sweden Tercentenary Foundation (*Riksbankens Jubileumsfond*). RWAAL digitised and processed ethnographical materials dating back to 1964 (Benjamin, Singapore), and were involved in the documentation of the indigenous communities of the Nicobar Islands (Singh, Canada). Also, botany samples from the so-called Kammu Project were scanned for the first time in a collaborative project with *Arkivcentrum Syd* and *Lund Botanical Gardens* (Widén).

The project *Language as key to perceptual diversity* (LANG-KEY; Burenhult) entered its third year. This project brings together scholars from Linguistics, Cognitive Psychology, Geography, and History of religion in the

UK, the Netherlands, Denmark, Switzerland and Mexico to explore how languages express sensory experience, with a focus on endangered speech communities. In 2018 fieldwork was conducted in Malaysia, Ghana, and Mexico. The project employs innovative field techniques for collection and analysis of linguistic data, among them the use of action cameras with built-in GPS for documenting spatial language and behaviour. It also pioneers the integration of geographical data in linguistic annotation tools, providing richer environments for analysis of human communication in its environmental context. The data are hosted on the corpus server.

### THE PUFENDORF DATA THEME

In 2018, the Lab also continued its involvement in the Theme DATA at the Pufendorf Institute for Advanced Studies at LU (Davies, Lassi, Åström coordinators; Gullberg on the steering committee; Frid thread leader). In a uniquely broad constellation, the DATA theme, running 2017-2018, brought together researchers from the School of Economics & Management, Humanities & Theology, Engineering, Medicine, Science, and Social Sciences, as well as from the University Library. The aim was to tackle issues concerning research data, to discuss and deepen our understanding of data storage, discovery, and visualisation, as well as to probe how we work together across disciplinary boundaries. Over two semesters the theme members met to share expertise, and advance research at the boundaries of research areas in five so-called threads. The Lab was particularly engaged in two threads. Thread 3 *Discovery from the written word* (lead by Frid, Björk, Ohlsson) focused on natural language processing (NLP) and machine learning (ML) approaches to the analysis of the content of collections of written texts, particularly scientific publications. The work was the basis for a successful grant application

to VINNOVA. Lab members (Garde) were also heavily engaged in Thread 2 *Visualising the universe* (lead by Agertz, Wallergård; see [3D scanning](#), [Virtual Reality \(VR\)](#)), contributing expertise on 3D visualisation.

Theme events held in 2018 included a seminar on register studies, a public panel discussion entitled *From policy to practice – data management and infrastructure* held in collaboration with Big Science and Society, and hack days to find concrete solutions to concrete problems. Thread 3 co-arranged a one-day workshop on *Machine learning in medicine and astronomy*, with nine speakers and more than 60 registrants. The theme also hosted guest researchers Anne Beaulieu, Rijksuniversiteit Groningen, Matthew Bietz, University of California Irvine, Michael Witt, Purdue University, and Christine Borgman, University of California Los Angeles, each with expertise in different areas relating to the theme. The theme concluded with a conference, *DATA: storage and working together*, with national and international keynote speakers and presentations from the threads. Interviews and presentations from the Theme activities are found at the Pufendorf IAS [Youtube channel](#). Frid and Gullberg were core members, but several Lab members participated in the work, especially on aspects of language and on Virtual Reality, attended the seminar series, etc. (Garde, Niehorster, Nyström, Larsson, Lindgren, Åhlfeldt).

### SOUND AND FILM FACILITIES

The **LARM studio** provides professional audio and video recording facilities as well as a set of musical instruments. A series of new research projects were initiated in the studio in 2018. The project *Multilingual effects of the McGurk effect* (Tronnier, Dimitrakopoulou) recorded a series of videos to investigate the so-called McGurk effect, a perceptual phenomenon where vision interferes with hearing to influence how a sound is interpreted

## User projects

### WORKING MEMORY IN HUMANS VERSUS RAVENS

Katarzyna Bobrowicz, Cognitive science

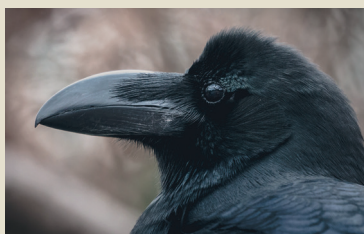


Photo by Peter Lloyd on Unsplash

This project used resources in the Humanities Lab to test human participants on so-called Span Tasks. These are short, computerized working memory tasks. The tests were part of a larger project, in which humans' and ravens' short-term memory capacity was tested in a similar set-up where they participated alone or with a partner. Humans showed better memory in absolute terms on all tasks, but the ravens performed relatively better than the humans when they had to keep track of a partner's actions.

### DO READERS OF ARABIC CHECK WORDS FOR CASE ENDINGS?

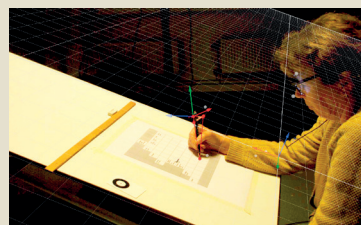
Andreas Hallberg, University of Gothenburg



This study investigated whether readers of Arabic check words for case endings, or treat them as optional. Using eye-tracking to monitor eye movements during reading, the study showed that at least for some types of words, case endings can be removed, yielding what is traditionally regarded as incorrect sentences, without readers noticing. This indicates that Arabic readers regard case markers as an optional and not as an obligatory feature, as it is commonly described.

### COGNITIVE CONTROL IN A CROSSWORD PUZZLE TASK

Sven Strömqvist, General linguistics



This study (sponsored by the Linnaeus Centre *Thinking in Time: Cognition, Communication and Learning*) examines drafting processes in different modalities in a broad sense. In a pilot study consisting of a controlled crossword puzzle task, phases where participants discover a mistake and repair it were investigated. The data registration techniques include motion tracking and eye-tracking. The analysis involves modelling of the temporal structure of reading and writing and the interaction between these two processes.



(e.g. listeners hearing *ba* but seeing somebody say *ga* often think they hear *da*). A series of Master projects also used the studio to collect data. Two projects examining speech and gestures across languages and cultures recorded Mandarin Chinese and German speakers (Trojansky, Gullberg, Schönhals), or English and German speakers (Schlatter, Gullberg) to study similarities and differences in behaviour. A BA project used LARM equipment to investigate how Swedish students' engagement in massive multiplayer online role-playing games (MMORPG) influenced their second language oral skills in English conversation (Rau).

Continuing projects included *Shared reading after pain rehabilitation* (Ohlsson *et al.*), an interdisciplinary project involving the Humanities and Medicine which examines how group reading of literary fiction and poetry may interact with other forms of pain rehabilitation. Group meetings and interviews were recorded in the LARM studio. Other ongoing work is the Wallenberg Scholar project *Embodied bilingualism* (Gullberg) where adult second language learners and bilinguals are re-

corded to explore how speech and gesture interact and shed light on the nature of bilingual language use.

The LARM studio was also used for academic courses in Musicology on music production, student projects in History to create digital media products, tutorials on video production, and the recording of science podcasts made by the Joint Faculties of Humanities and Theology, and scholars at the departments of Philosophy, History, and Communication and Media. In addition, the studio was regularly used by science programmes on national Swedish and German Radio for conducting interviewed recordings with researchers at LU.

**The anechoic chamber** was used in the preparation of auditory research stimuli and materials for a range of projects. Examples include studies examining how listeners handle Swedish word accents (the difference between *anden-änden*, the duck-the ghost). One project recorded materials to study the relationship between brain structure and language aptitude (Roll; Wallenberg Academy Fellow). In a MA project data were recorded to investigate whether English and Swedish speakers liste-



ning to Mandarin Chinese differ depending on whether their first language has tone (Swedish) or not (English) (Wen, Roll).

### 3D SCANNING, VIRTUAL REALITY (VR)

The use of 3D and VR techniques continued to develop in 2018 in projects initiated in previous years. Both data acquisition using 3D laser scanners, and method development work took place during the year.

Methodological work continued in the project *Visualising the assembly of the Milky Way - a Virtual Reality framework for interactive exploration of complex 3D data* (Lindgren), funded by the strategic research area for e-Science, eSSENCE. In a collaboration with Astronomy and Theoretical Physics (Davies, Agertz) and Design Sciences (Wallergård) the Lab leads the work aiming to create a framework for visualising any type of 3D data. In 2018 the members tested and evaluated solutions and workflows for handling different types of 3D data (Garde, Lindgren). This work was also an important element in the theme group DATA at the Pufendorf Institute

for Advanced Studies at LU, specifically in Thread 2 (see [The Pufendorf DATA theme](#)).

Another ongoing collaboration, the Hermione project, brings together the Lab (Lindgren, Landeschi), the Department of Archaeology and Ancient history at LU, and the Swedish Institute in Athens to create a plan of the ancient city of Hermione, Greece. In 2018 a new collaboration with the University of Southampton was initiated to conduct a ground penetrating radar (GPR) survey of the challenging outer part of the Argolid peninsula. The GPR measurements were converted into voxel-based 3D models and placed into the GPS system established in previous years.

GPR technology was also tested in the ongoing project in the monastery church in Vadstena, in collaboration with the Department of Technical Geology at LU. Here the aim was to search for any foundations under the church floor that might provide information on the church layout in the 15th century (Rossi, Lindgren). The Vadstena project also implemented a new method called *Extended Matrix*. This method, developed in Italy, aims





to document the reconstruction workflow, to keep track of and visualise the sources used for the final reconstruction. The Extended Matrix method was tested and further developed in collaboration with the *Institute for Technologies Applied to Cultural Heritage* (CNR-ITABC, C. Larsson, Lindgren).

In 2018 the Lab also acquired VR headsets with built-in eye trackers. These enable the investigation of what people look at in virtual environments. Several new endeavours plan to exploit these possibilities. One example is an archaeological project aiming to investigate whether the location of political graffiti in different spaces in Roman houses can explain how these houses was divided into public and private areas (Landeschi, Nyström).

Further, various methods for 3D documentation of small, geometrically complex objects, or objects made of materials that cannot be detected by laser scanners, have been evaluated in collaboration with the Department of Biology at LU. One outcome is the construction of a so-called rig that allows for high-resolution stacked macro photos to be taken easily from multiple angles. Lab members applied image-based modelling techniques and used the macro photos to create precise 3D models (Bianco, C. Larsson, Lindgren).

All 3D projects have benefitted from collaboration with *Lund University Centre for Scientific and Technical Computing* (LUNARC), which provides access to computational resources needed for heavy data processing. Access to super computers has significantly reduced the time of post processing of 3D data and also enabled the treatment of large data sets even from the field (Lindgren, Follin, Dell'Unto).

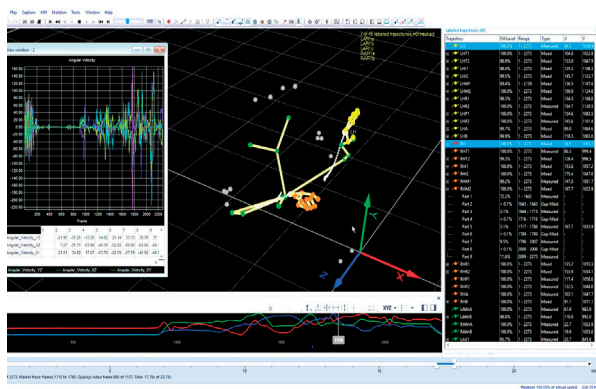
## MOTION CAPTURE (MOCAP), VIRTUAL REALITY (VR)

Motion capture is another 3D technology that enables the recording of human bodily movements in 3D with high spatial and temporal resolution. The motion capture system consists of eight high-speed infrared cameras, a high-speed video camera, and a recording computer. The infrared cameras detect and record the 3D position of reflective markers strategically located on the moving individual's body.

In 2018, motion capture was used in an ongoing project studying older crafts, specifically thread spinning from wool in a collaboration with the *Textile Research Center*, the *Saxo Institute*, and Archeology at the University of Copenhagen. Important methodological work was done on the post-processing of the recordings testing different workflows to improve the management of motion capture data, including event detection (Andersson Strand, Öhrman, C. Larsson, Lindgren).

The Wallenberg Scholar project *Embodied Bilingualism* (Gullberg) continued its use of motion capture and VR to build and examine speech-gesture profiles of native and non-native speakers of different languages to probe issues of bimodal language processing. In 2018, work continued on identifying key characteristics of movements defining the beginning and end of gestures based on marker setups (so-called event detection; Garde, Christensen, Gullberg).

Lab members also undertook a complete review of all motion capture systems and software versions. In a workshop with the system manufacturer, *Qualisys Inc.*, workflows were reviewed for a range of possible study scenarios (Garde, C. Larsson, Lindgren). Other development involved connecting motion capture data to virtual 3D characters. To move recorded data from actual people onto virtual 3D characters, so-called rigs are needed. Lab



members developed and refined such rigs (C. Larsson). The Lab also acquired integration kits allowing for the integration of eye movement measurements and motion capture recordings (see [Eye-tracking](#)).

## ARTICULOGRAPHY

The Lab hosts electromagnetic articulography (EMA), which also generates 3D data. 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.

Research using EMA includes a PhD project in phonetics, which examines articulatory movements involved in coarticulation (Svensson Lundmark). This project has led to the refinement of visualisation techniques and data collection procedures, as well as to new methods for gluing sensors to articulators (Frid, Schötz, Svensson Lundmark). These methods are also tested in a project which compares the acoustic and articulatory correlates of pitch accents and lexical tones in Swedish and Mandarin Chinese (Frid, Gao, Svensson Lundmark, Schötz). Another project, *PROGEST*, brings together scholars from the Royal Institute of Technology (KTH), the Lin-

naeus University, and Lund to study the synchronisation of speech and head gestures in so-called visual prominence using EMA data (House, Frid, Ambrazaitis, Svensson Lundmark). Results have been presented at national and international meetings. EMA has also been used in the teaching of phonetics and logopedics (Schötz).

## EYE TRACKING

In 2018 eye-tracking technology and related Lab expertise was engaged in a range of projects of both an applied and a methodological nature involving different disciplines, faculties, national, and international collaborations.

Examples of new projects using eye-tracking during the year range from studies of how Swedish speakers read and understand sentences with complex grammar (so-called subject islands; Tutunjian, Wiklund), how eye movement patterns (scanpaths) interact with memory formation and recall (R. Johansson, Nyström, Dewhurst, M. Johansson), to the so-called 'quiet eye' effect (Dahl, Heckler, Tryding, Granér, Nyström), whereby experts look longer at a target than novices just before taking action, such as just before hitting a golf ball. Other projects investigated the performance of mobile eye-tracking glasses when participants' heads move (Santini, Nyström, Hessels, Hooge, Niehorster), and visual feedback in computer-based educational games (Gulz, Haake, Niehorster and students). Work also continued in the big international project involving both industry and research to assess eye-tracker data quality as a function of eye-tracking system, individual characteristics of participants, recording environment, and operator (Mulvey *et al.*).

Collaborations with Medicine at Lund University also grew during the year. One project examined eye movements in patients with nystagmus, a condition in which the eyes make repetitive, uncontrolled movements



leading to reduced vision with effects on balance and coordination (Nyström, Rosengren, Stridh, Hammar). In 2018 the project focused specifically on improving classification of nystagmus waveforms to improve clinical work. New collaborations involve projects around eye movements and vestibular functions (the sensory system in charge of handling balance and orientation in mammals), the reading of radiograms (Timberg, Hellgren, Zackrisson, Nyström), and the influence of noise on people with attention disorders (Gustafsson, Söderlund, Nyström).

Work to improve the usability of the Lab's eye-trackers continued in 2018. To this end, tools were developed to enhance the use of SMI and Tobii eye-trackers in both MATLAB and Python programming environments (Niehorster, Nyström). These tools were immediately used in studies investigating how agreement in social media

posts affects attention to news on social media (Dutceac Segesten, Bossetta, Holmberg, Niehorster), how gaze communication may generate learning benefits in a classroom (Niehorster, Rosengren, Nyström, Van Gog, Jarodzka), and decision making (Gidlöf *et al.*).

Multiple national and international collaborations are underway involving, for example, Malmö University, the University of Gothenburg, and the Swedish University of Agricultural Sciences at Alnarp, universities in the Netherlands (Utrecht, Heerlen), Germany (Tübingen), Norway (the Institute for Energy Technology), Finland (Turku, Vasa) and the US (the University of Rochester). For example, a joint project with Utrecht, the Netherlands, sought to improve our understanding of how eye movements are best defined (Hooge, Hessels, Niehorster, Nyström). A real-time feedback platform for studies of

learning was also developed with colleagues in Tübingen (Scheiter, Van Gog, Meier, Niehorster).

International engagements also included presentations at the leading conferences in the field, including a conference originally initiated in Lund 10 years ago, the Scandinavian Workshop on Applied Eye Tracking (SWAET), and the Eye Tracking Research and Applications Conference (ETRA) (Nyström, Niehorster).

Lab members were also engaged in teaching and training, with invitations to teach and hold seminars on eye-tracking methodology locally (Nyström, Niehorster), nationally (Nyström), and internationally (Nyström, Niehorster). In 2018 these training events reached an estimated 350 people and included invited talks at three conferences in China (Niehorster), as well as doctoral symposia at professional conferences where PhD students could get targeted feedback (Nyström; see [Organisation of conferences, workshops, and symposia](#)). A workshop was also held in Lund (Nyström, R. Johansson) on how to use eye-tracking to study the 'quiet eye' in real-world studies (see [Organisation of conferences, workshops, and symposia](#)).

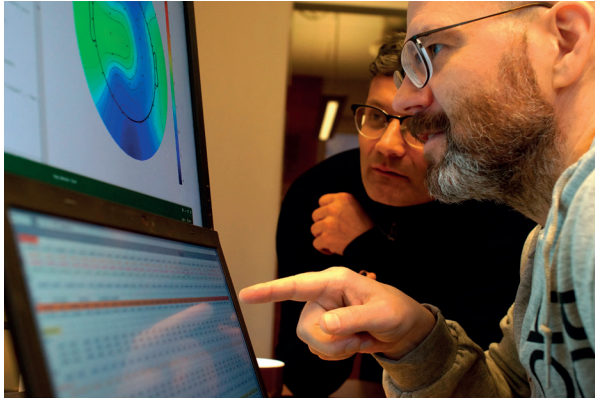
Finally, the upgrade of the Digital Classroom, enabled by generous funding from the LMK Foundation, progressed during the year with the installing and testing of 17 state-of-the-art desktop-based eye-trackers, three head-mounted eye-trackers in the form of glasses, and three eye-trackers built into Virtual Reality headsets. This upgrade will expand the Lab's capacity for studies of learning in contemporary classrooms with screen based and digital teaching methods. Development and set-up of local networks and computational infrastructure will continue during 2019 in order to render data flows efficient and secure.

## ELECTROPHYSIOLOGY

Electrophysiological measurements of brain activity (EEG) were used in a range of research and training activities during 2018, many of them examining language. For example, continued work led by a Wallenberg Academy Fellow (Roll) investigated how intonation and grammar interact when native speakers process Swedish (Roll, Novén, Söderström, Horne). A new development was a study using the so-called mismatch negativity protocol. A PhD project in English used event-related potentials (ERPs) to examine how native speakers of English process negated sentences compared to positive ones when reading and listening (Farshchi, Paradis, Andersson). In an ongoing collaboration with the Linneaus University, ERPs are used to investigate how German and English learners of Swedish handle the Swedish verbs *sätta* 'set', *ställa* 'stand', *lägga* 'lay' in comparison to native Swedish speakers (Andersson, Blomberg, Gullberg). Another project uses ERPs to study how Swedish speakers process sentences where pronouns refer back to expressions such as *några studenter* 'some students' vs. *få studenter* 'few students' (Klingvall, Heinat).

Over the course of the year, the Lab also developed more streamlined protocols for experimental set-ups and stimulus presentation to improve usability. Moreover, the Lab offered a Research Methods course on EEG during the spring semester with participants from both Humanities and Social Science (Morris). The course, which combined lectures with hands-on exercises, provided students with an introduction to ERPs and practical experience of working with the EEG systems. At the end of the course students should be able to undertake their own research projects in the Lab.

The EEG facility underwent extensive hardware upgrades during the year. All 64-channel electrode sets in the Neuroscan Lab (EEG2) and their caps were replaced. A



cap and electrode set suitable for testing young children was also added to the inventory, and a new stimulus computer was installed.

### Magnetic Resonance Imaging (MRI)

The Lab's MRI liaison officer (Mårtensson) continued to work on forging stronger links between the Lab and *Lund University Biomedicine Centre* (LBIC). LBIC hosts state-of-the-art MRI facilities to study brain anatomy and brain function. In particular, functional magnetic resonance imaging (fMRI) has become an important tool for the study of learning, for example. Stronger connections between the Humanities Lab and LBIC will facilitate and strengthen work in the so-called Medical Humanities at LU.

In 2018 LBIC and Lab staff worked together on the installation of a modern eye-tracking system in the National 7T Facility housed at LBIC. Through the combination of eye-tracking and MRI new possibilities open up to study and control attention while examining brain function. Mårtensson also initiated work on an MRI course to be housed in the Lab and intended for participants with no medical background. The course will run for the first time in 2019. The Faculty of Social Sciences

further awarded a grant to Mårtensson and Innes-Ker to evaluate how such a course could best benefit students and researchers.

A further development is the launch of a so-called Advanced Study Group at the Pufendorf Institute for Advanced Studies entitled *Rapid brain change and long-term outcomes* (ROUTE; Mårtensson co-ordinator, Gullberg member). The group has members from Medicine, Social Sciences, Engineering, and the Humanities. The Group met for seminars with invited speakers to probe questions concerning brain plasticity in both animals and humans.

A new collaborative project on language learning in virtual worlds and brain plasticity was also funded and launched in 2018, bringing together the Lab, the Medical Faculty at LU, and Pennsylvania State University, USA (Mårtensson, Gullberg, Li, Langensee). The aim is to teach learners Mandarin Chinese in a virtual interactive environment, and then to examine changes in brain structure as a function of learning using MRI.

### BIOPAC

When events happen around us, such as a loud sound, we react both psychologically (e.g. with fear) and physically. The BioPac system (MP150) allows us to measure such psychophysical reactions to specific events. The current system consists of a galvanic skin response unit (GSR100C), a respiratory unit (RSP100C), and a heart rate variability unit (ECG100C). Responses occur within 1 to 4 seconds after the event, and the amplitude of the responses is an indication of the strength of the reaction or the effect that the event evoked. The system can also be connected to other external measurement devices. In 2018 a collaborative study was initiated with a research unit at Malmö Hospital (Yang) to pilot electrodermal correlates to changes in blood sugar levels.



Another cross-disciplinary project continued at LU using the BioPac system to examine the regulation of emotion in youth with obsessive-compulsive disorder (Cervin, Lindvall, Olsson, Perrin).

## OTHER AREAS

### Multimodality

Multimodal analysis of human behaviour (mainly speech and gesture) continues to grow as a domain of investigation. The LARM-studio is often used for video recording, but video is also recorded in the field. The video annotation software ELAN is used to transcribe and annotate multimodal behaviour (tutorials offered by Graziano; see [Training, teaching, consultations](#)).

A range of studies made crosslinguistic and cross-cultural comparisons of speech and gestures. For example, one study examined how pragmatic meanings (e.g. statements such as *I don't know*) are expressed cross-modally in Italian and Swedish and in different genres (Graziano, Campisi, Gullberg). MA projects have investigated how English and German speakers differ in their speech-gesture descriptions of spatial arrays (Schlatter, Gullberg), and identified differences in how Mandarin Chinese and German speakers talk and gesture about putting things in places (Trojansky, Schönhals, Gullberg). A PhD project in Linguistics examines how speech and gesture jointly form cohesive discourse in German (Debreslioska, Gullberg).

Other projects focus on multimodality in language acquisition or bilingualism. Gullberg's Wallenberg Scholar project *Embodied bilingualism* continues to examine how native speakers process language learners' speech and gestures, especially in cases where the learners' gestures do not match those of native speakers. The project also examines how learners process gestures in

a language they are learning. A PhD study in the same project investigates how bilingual speakers of Swedish and Turkish talk and gesture about musical pitch, where Swedish uses a high/low distinction, but Turkish favours a thin/thick one (Christensen, Gullberg). Turkish-Swedish bilinguals show evidence of a converged system whereby terms for height are used more often in both languages, and gestures reveal a mixed underlying representation, combining a gesture performed in high space with a handshape expressing thinness, for example. In 2018 the project collected more data in South Africa from Afrikaans and Xhosa speakers (Christensen, Bylund, Gullberg). Further, a new collaboration with the University of Concordia probes the effect of multimodal behaviour (gesture) on the comprehensibility of a language learner's speech (Graziano, Trofimovich). Finally, at the end of the year, funding was secured to launch a new project piloted in the LARM studio on the acquisition of sign language as a second language after only a few minutes of exposure and with no training (Marshall, Janke, Gullberg).

### Keystroke logging

Keystroke logging is a technique that allows us to record how writing unfolds keystroke by keystroke over time. It opens new views on how texts evolve and highlights that the process of writing may look very different from the final text. A keystroke logging tool, ScriptLog, is partly developed and maintained by the Lab (Frid, V. Johansson, Wengelin, R. Johansson, Strömquist). A collaborative study between Linguistics and Logopedics used keystroke logging to compare spoken and written narratives produced by twelve-year-old Swedish children (V. Johansson, Sahlén, Åkerlund). The study revealed that planning indices such as pauses and repetitions were present in both speech and ongoing writing, but not of

course in the final written texts. Several projects have also combined keystroke logging with eye-tracking revealing how planning, writing, reading, and revising are linked during text writing (Wengelin, V. Johansson, Frid, R. Johansson).

### Other

Reaction time experiments continue to be used for a range of purposes. As an example, a self-paced reading study investigated the processing of complex grammar in English (Müller, Tutunjian, Wiklund).

## User projects

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### VISUAL CHAPTER FOR 'IMAGINING SOMEWHERE'S'

*Clarissa Grace Chang, Visual Culture*

A Master thesis in Visual Culture made use of the LARM-studio to create a Virtual Reality so-called 360-piece to explore whether and how obstruction of the gaze functions as a possible intervention in film, art, and other imagery. Physical obstructions and visual disruptions (e.g. grainy pixelation, text) were used and analysed as interpretations of obstruction. The 360-piece was made to create an abstract space governed by the researcher's own imaginings – a 'somewhere' – and to explore the materiality of theories.

### AIR LUND CHEST PAIN - MORE EFFICIENT AND EQUAL EMERGENCY CARE WITH ADVANCED MEDICAL DECISION SUPPORT TOOLS

*Jonas Björk (Division of Occupational and Environmental Medicine), Ulf Ekelund (Medicine), Mattias Ohlsson (Computational Biology and Biological Physics), Johan Frid (Lund University Humanities Lab), Arash Mokhtari (Medicine)*

Estimates suggest that patients seeking emergency care due to chest pain lead to costs of approximately 100 MSEK annually in Sweden – costs that could be avoided if clinical examination could quickly determine acute coronary syndrome or not. This project aims to develop a medical decision support tool where natural language processing and deep learning methods are applied to patient data in medical journals and extensive health care registers. The tool will collect, systematize and categorize patient data. It will help improve clinical efficiency and security. This project, funded by VINNOVA, is a cooperation between the Medical faculty, the Science faculty, and the Humanities Lab.

## National and international collaborations

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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.

**LOCAL.** The Lab has many local collaborations across Lund University. Some are longstanding such as with the Linnaeus Centre *Thinking in Time: Cognition, Communication, and Learning*, the departments of Linguistics, Archeology, etc. Newer collaborations include joint work with the Division of Logopedics, Phoniatrics, and Audiology, at the Department of Clinical Sciences (Schötz, Splendido) to build academic courses on methods for studying speech production and phonetic transcription of (Swedish) speech. In the domain of e-Science, local collaborations have substantially intensified (see below under National collaborations). Stronger collaborations have also been initiated with Lund University Biologizing Centre through the recruitment of a liaison officer (Mårtensson) with a double appointment at both units to facilitate and boost the use of and training in brain imaging techniques. In 2018-2019 Mårtensson coordinates an Advanced Study Group at the Pufendorf Institute for Advanced Studies entitled *Rapid brain change and long-term outcomes* (ROUTE; see [Research](#)). This group has forged new connections between the Humanities Lab and other groups at the Medical faculty interested in the brain.

The local collaborations in the domain of e-Science continued at full speed in 2018 through the Lab participation in the Theme Group DATA at the Pufendorf

Institute for Advanced Studies (see [Research](#)). Over two semesters DATA brought together researchers from six faculties and the University Library to discuss how we approach research data. The key themes were discovery, prediction, visualisation, and curation. Weekly work meetings and seminars allowed for in-depth work, complemented by hack-days, and invited guest researchers contributed to fruitful elaborations of key notions. Further to this, Lab members also participated in REACH, a forum promoting interactions between the strategic research areas and other research groups of excellence at LU. REACH aims at facilitating joint research and improving the knowledge and expertise in using computers and computational techniques within research throughout LU. It is coordinated by the LU node of e-SCIENCE. In 2018 the Lab participated in REACH activities by giving lectures on the use of particular software (van de Weijer). The Lab also contributed to COMPUTE, the research school for the Natural Sciences at LU. In 2018, Lab members presented at the COMPUTE Winter meeting which was dedicated to work done in the theme DATA at the Pufendorf Institute for Advanced Studies (Frid; see [Research](#)). Lab members also regularly contributed to [COMPILE](#), a common web page for research, education, and infrastructure related to Science and e-Infrastructure at Lund University.

**NATIONAL.** National collaborations are numerous. The Lab is a node in the national consortium [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 2018 (see [Research](#)) in addition to consulting on issues of language technology.

The Lab also continued and intensified its partnership with [eSSENCE](#), a national strategic research program 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. Gullberg is a member of the local steering committee. Data flows, large databases, heavy data computation, and data visualisation, achieved with the assistance of *LUNARC*, the Lund University Center for Scientific and Technical Computing (Gullberg member of the executive board), was further exploited in an ongoing eSSENCE-funded project concerning the use of Virtual Reality to visualise the Milky Way, under the leadership of Lab member Lindgren, and with participants from the Lab (Garde, Nyström, Niehorster), from Astronomy, Physics, and the Ingvar Kamprad Design Centre at LU.

The Lab was also deeply involved in issues concerning research infrastructures in 2018, both specific to the Humanities and more generally. The Lab continued its collaborations with HUMlab Umeå on so-called 2D mapping, linking linguistic or cultural heritage data to geographical data. The Lab also participated in the Swedish Research Council's (*Vetenskapsrådet*) call for applications to National Infrastructures 2017-2018. The Lab's own application was graded as A3, deemed relevant but not yet fundable as a *national* research infrastructure. The

Lab also participated in an application with eight other universities led by Chalmers University of Technology for a National Research Infrastructure for Visualisation of Data (*InfraVis*), which was graded A1, deemed fundable. The other LU-based applicants in *InfraVis* were Astronomy, and Design Sciences.

The Lab further participated in national hearings concerning infrastructures for the Humanities. In 2018 there was a first national hearing concerning Swedish membership in the European consortium Digital Research Infrastructure for the Arts and Humanities (DARIAH-EU), where the Lab presented some of its solutions for dealing with cultural heritage data (Gullberg). The Lab also contributed to a national Workshop on Infrastructures for the Humanities, *#huminfra*, in October 2018. The workshop was organised by a group of scholars coordinated by Patrik Svensson, Umeå (member Gullberg) with funding from the Bank of Sweden Tercentenary Foundation, and involved national and international speakers. The purpose was to discuss policies for infrastructure for the Humanities and open for a dialogue between infrastructural units (e.g. *The Royal Library*, the *National Archives of Sweden* and infrastructures at the universities), policy makers and politicians, and research funders. The event was filmed and is available [online](#). The workshop also generated a report on infrastructure for the Humanities (RJ Rapporterar 2019:1, [Humanistisk infrastruktur](#)), available online.

**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). These networks include the *Centre for Textile Research* in Copenhagen, Denmark, the *Swedish Institute in Athens* and *CNR-ISTI* in Pisa. In the domain of eye-tracking, long-

standing collaborations with the University of Tampere and Utrecht University involved both sharing of skills in training and research activities in 2018. 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. The Lab Corpus server is connected to TLA.

Moreover, the Humanities Lab is a partner in a number of international centres such as the *Centre for Multilingualism in Society across the Lifespan*, Oslo; *Advanced Studies on Language complexity*, Lyon, France; and *Dig-HumLab* Denmark, the Danish national consortium for digital humanities.

In 2018, the Lab also participated in discussions about infrastructures at the International level partly through its status as a node in CLARIN, its involvement in Dig-HumLab Denmark, and partly through new connections to the *IT Center for Science*, Finland, and specifically its unit focusing on language technology.

The Humanities Lab continues to host many visiting scholars from all over the world for both short- and long-term stays (see [Visitors](#)). These visiting scholars contribute to the environment by generously giving guest lectures and engaging in scholarly exchange with the whole environment. Of particular note for 2018 are visitors from South Africa as part of a bilateral project funded by The Swedish Foundation for International Cooperation in Research and Higher Education (STINT) entitled *Unravelling the bilingual mind* (Gullberg, Bylund).

Finally, Lab members also regularly give invited scholarly talks about their own research both within and outside Lund University. These activities contribute in important ways to building new connections.





## Training, teaching, consultation

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An important part of Lab activities is training. The Lab offers a variety of training activities such as PhD courses, group tutorials, individual and group consultations, and guest lectures. These are adjusted according to topics, needs, and audiences. The goal is to facilitate and increase access to the technological resources that require advanced methodological skills, and to enable interdisciplinary work within and across faculties. Lab staff is engaged in a number of training activities throughout the year, including areas such as visualisation of 3D data, programming and statistics for the behavioural sciences, data storage, annotation of video data, etc.

**PhD courses** run over a number of weeks, and focus both on broad methodological approaches, such as experimental design or statistics, and on specific research technologies, such as eye-tracking. Courses include practical hands-on elements as well as theoretical and methodological components. In 2018, the Lab members offered courses on *experimental design* and on *statistics*.

**Group tutorials** are often related to issues of data collection or to specific pieces of software. In 2018, several group tutorials were given on *video recording, editing and video production*, on *the use of Virtual Reality in computational research*, and on the use of the software *ELAN for video annotation*. Other software tutorials given were *Psychopy* and *R for non-statistical use*. The tutorials on video production were especially popular with **16** repeats.

**Individual or group consultations** are an important part of the training provided in the Lab. They often focus on specific research problems related to the use of specific software, technologies, or analysis methods. In 2018 **198** such consultations were provided. Areas covered included statistical advice and methodological guidance (van de Weijer), advice on audio and video recordings, podcast production in the LARM-studio (Roslund), web-based perception experiments (Frid), gesture coding (Graziano), the use of mocap (Garde, Lindgren, C. Larsson), EEG programming (Garde), corpus searches, text visualisation, and introduction to topic modelling (Swe-CLARIN coordinator Frid). In addition, many consultations concern software, and specifically how research software can be used and adapted to the needs of specific research projects. In 2018 we provided consultations on ScriptLog (Frid), PsychoPy (Garde), ELAN (Graziano), R (Frid, van de Weijer), E-prime (Garde, van de Weijer), Python and Java programming (Garde), Haxe (Garde), Matlab (Garde), Unity 3D and C# (Garde), Curry7 (Garde).

In 2018 the Lab further held training events in the form of **seminars and workshops**. One general method seminar is organized per semester. Two workshops were dedicated to 3D data. In September the Lab hosted a workshop on motion capture methods in collaboration with the manufacturer *Qualisys*, followed by a 3D scanning workshop in October. Moreover, in November, an Eye-tracking training day was organized. The purpose was to invite old and new Lab users to test the new upgraded eye-tracking equipment (Tobii Pro Spectrums

and portable Tobii 4Cs for screen based studies, Tobii Pro Glasses 2 for mobile eyetracking), and HTC Vive headsets for eye-tracking in Virtual Reality (VR).

Lab members also contribute to courses outside the Lab by giving adapted **lectures** or workshops. In 2018 Lab members participated in both local and international courses, for example training History students at LU in audio- and video recording, Design Science students in the software PsychoPy, or giving tutorials on the Statistical package R (the Czech Republic), or an introduction to eye-tracking (Italy), etc. (**21** occasions).

**Lab facilities** are also recruited for laborative modules and training in regular academic programmes such as the LARM studio for music production, the 3D unit for Virtual Reality in Archeology, and the digital classroom for students from Biomedical Engineering.



## Highlight: New lab staff 2018

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**Giacomo Landeschi**

*Research engineer, 3D techniques and GIS*

I am a specialist in Geographical Information Systems (GIS) and 3D technology applied to the visualisation and analysis of Cultural-Heritage sites. My competence includes the use of high-precision GPS devices for georeferencing spatial 3D objects (e.g. artefacts, archaeological sites, historical buildings, etc.) as a result of laser scanning acquisition or image-based modelling. In the Lab, I provide help on data that requires accurate geo-location and visualisation in a geodatabase system. I work closely with other Lab members on new pipelines for 3D data acquisition, implementation and visualisation, and on the inclusion of eye-tracking.

We are currently testing new methods for processing image data from high resolution video to create 3D models with image-based modelling techniques. We also look for new ways to integrate methods using laser scanning, image-based modelling, GPS, drones and so-called Total stations instruments in the field.



**Maria Graziano**

*Educational developer/coordinator*

As the educational developer I coordinate the training in the Lab, the teachers, the planning and organisation of courses, tutorials, and workshops. I also organise and lead Lab tours for visitors (researchers as well as the general public, such as pupils in schools). I am also responsible for developing tutorials on different topics and tools, for example ELAN, a multimodal annotation tool. I also train students and researchers myself, and provide counselling on annotation and analysis tools.

As a researcher I have worked on several projects, all within the field of Linguistics, where I study multimodality in speech production. In my research I have found that children's use of gesture develops in parallel with speech. I've also found that it is true that Italians gesture more than Swedes, as everyone believes, but also, more interestingly, that they gesture in a different way.

## Visibility, access, outreach

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As every year, the Humanities Lab hosted multiple events for local, national and international visitors from a range of fields. In 2018 a total of **31** tours and demos were organized for local, national and international visitors, often with concrete demonstrations of ongoing research and hands-on elements.

Among the local recipients were Deputy Vice-Chancellor Sylvia Schwaag Serger, Lund Biolmaging Center, Faculty leadership from the Engineering, the Medical, and Social Sciences faculties, the Department of Strategic Communication from Campus Helsingborg, etc. As in previous years, the Lab also offered introductory tours and demo sessions to undergraduate and postgraduate programs. Teachers and supervisors are encouraged to participate in these events. National guests included the Royal Physiographic Society of Lund, the Police, the Wallenberg Advanced Teachers Program, and librarians from the Department of Communication and Learning in Science at Chalmers University of Technology in Gothenburg. Lab tours were also given to international visitors from the University of Illinois and Michigan State University in the US, the Universities of Copenhagen, Konstanz, Nottingham, Tampere, Zurich, Bethlehem University in Israel, and Yarmouk University, Jordan, to mention but a few.

The Humanities Lab further organized and participated in several **workshops and conferences** during the year. This included workshops with a focus on eye-tracking organised and hosted by Lab members at both local and international events such as the Scandinavian Workshop on Applied Eye-Tracking in Copenhagen (Nyström), the Eye-tracking Research and Applications

(ETRA) conference in Warsaw, Poland (Nyström), and a workshop on Eye-tracking to investigate the Quiet Eye (Nyström, R Johansson). Lab staff also co-organised the workshop *Machine Learning in Medicine and Astronomy* which was part of the final event of the DATA theme at the Pufendorf Institute for Advanced Studies (Frid, Ohlsson).

Lab members also gave a number of **invited talks** in academic and in popular science contexts. Many of the talks demonstrated technologies and activities in the Lab. For example, Lab members participated with talks and demos at the popular *Humanities Days (HT-dagarna)* organized by the Joint Faculties of Humanities and Theology, and in national outreach events such as the *Gothenburg Book Fair* where a Virtual Reality tour of a villa in Pompeii was demoed on site (Petersson). Lab members gave talks on topics such as speech and gesture (Graziano, Gullberg), on intangible cultural heritage (Burenhult), text analysis and topic modelling (Frid), statistics (van de Weijer), writing processes (Johansson), etc.

Other talks were specifically concerned with infrastructure. Such talks were offered locally, at the Faculty of Engineering (Gullberg), nationally at Stockholm University (Gullberg, Johansson), and internationally at The University of Copenhagen (Gullberg).

The Lab communicated about activities on its **web site** and **social media** (Facebook, Twitter) with regular updates on research, events, grants, and awards. Information about policies, access, user agreements, participation in experiments, etc, are available on the web. In 2018, policy documents and user agreements were updated.

# Lab demos

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## INTERNATIONAL VISITORS:

- Bethlehem University, Israel
- Eisenhower Fellowship Scholar, San Fransisco, California, USA
- Exchange master students, Lund University
- Michigan State University, USA
- University of Antwerp/KU Leuven University, Belgium
- University of Copenhagen, Denmark
- University of Illinois, USA
- University of Konstanz, Germany
- University of Nottingham, UK
- University of Tampere, Finland
- University of Zurich, Switzerland
- Yarmouk University, Jordan

## NATIONAL VISITORS:

- Dept. for Cultural Sciences, Lund University
- Dept. of History, Lund University,
- Dept. of Communication and Learning in Science, Chalmers University of Technology, Gothenburg
- Dept. of Strategic Communication, Campus Helsingborg, Lund University
- Engineering Faculty, Lund University
- Faculty of Social Sciences, Lund University
- IT and Library Departments, Joint Faculties of Humanities and Theology, Lund University
- Lund Bioluminescence Center
- Master students, Language and Linguistics, Lund University
- Master students, Cognitive Semiotics, Lund University
- Medical Faculty, Lund University
- The Police, Lund
- Royal Physiographic Society of Lund
- University Library, Stockholm University
- Upper secondary school class, Malmö
- Wallenberg Advanced Teachers Programme

## MEDIA APPEARANCES

The lab has appeared in the media on topics such as the discovery of a new language, 3D visualisations, cat-human communication, and prestigious awards and funding.





# Organisation of Conferences, Workshops and Symposia

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February 19, 2018

**Workshop on Eye-tracking to Investigate the Quiet Eye**

Lund University Humanities Lab  
Marcus Nyström, Roger Johansson

June 14, 2018

**Eye-tracking Research and Applications (ETRA) Conference**

Warsaw, Poland  
Marcus Nyström

May 23, 2018

**Machine Learning in Medicine and Astronomy**

Pufendorf Institute of Advanced Studies, Lund University  
Mattias Ohlsson, Johan Frid

August 23, 2018

**Scandinavian Workshop on Applied Eye-Tracking**

Copenhagen Business School, Copenhagen, Denmark  
Marcus Nyström

## Visitors

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January 29 – February 2, 2018

**Roy Hessels**

Utrecht University, the Netherlands

February 1 – March 31, 2018

**Ignace Hooge**

Utrecht University, the Netherlands

April 16 – 20, 2018

**Eléonore Arbona**

University of Geneva, Switzerland

May 8 – 16, 2018

**Thiago Santini**

University of Tübingen, Germany

September 17 – 21, 2018

**Khanyiso Jonas**

Stellenbosch University, South Africa

October 26 – November 2, 2018

**Simone Gültzow**

Stellenbosch University, South Africa

December 10 – 14, 2018

**Robyn Berghoff, Jenna Crossley, Jayde McLoughlin**

Stellenbosch University, South Africa

## Staff members 2018

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Niclas Burenhult  
Researcher

Sara Farshchi  
Project Assistant  
PhD student English

Johan Frid  
Local Coordinator Swe-CLARIN  
Researcher

Henrik Garde  
Systems Developer

Maria Graziano  
Educational Developer  
Researcher

Marianne Gullberg  
Director

Nils Holmberg  
System Administrator

Martina Holmgren  
Administrative Assistant

Victoria Johansson  
Deputy Director

Giacomo Landeschi  
Research Engineer (GIS)

Carolina Larsson  
3D Assistant

Jens Larsson  
Project Assistant

Stefan Lindgren  
Research Engineer  
Purchasing Coordinator

David Morris  
Technician (EEG)  
Researcher

Fiona Mulvey  
Researcher

Johan Mårtensson  
MRI Liason Officer

Diederick C. Niehorster  
Research Engineer  
Researcher

Jens Nirme  
Motion Capture Assistant  
PhD student Cognitive Science

Marcus Nyström  
Research Engineer (Eye-tracking)

Maja Petersson  
Administrative Coordinator  
Directory Administrator

Peter Roslund  
Research Engineer (LARM)  
Purchasing Coordinator

Susanne Schötz  
Researcher

Frida Splendido  
Educational Developer

Joost van de Weijer  
Methodologist  
Researcher

Cecilia Whitehorn  
Financial Officer

## Funders 2018

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Einar Hansens Allhemsstiftelse

The Joint Faculties for Humanities and Theology

The LMK (Lars Mikael Karlsson) Foundation

Lund University Research Board

The Marcus and Amalia Wallenberg Foundation

Pufendorf Institute for Advanced Studies at Lund University

The Swedish Research Council

The e-Science collaboration (eSSENCE)

The Swedish Foundation for International Cooperation in Research and Higher Education (STINT)



