

Thesis Supervisors:

Linguistics, Cognitive Semiotics and Cognitive Science

Note: You are free to choose supervisors across the disciplines. If you desire a supervisor across disciplines please contact the desired supervisor in advance.

**All supervisors external to LICS must be approved by the Head of Department,
Joshua Charles Skewes.**

NB: Faculty members on this list are available for thesis supervision, and most are also available for internal supervision of Project Placement projects.



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Research areas/Areas of supervision

- Linguistic behavior on social media
- Translation theory and practice (also as product thesis)
- Translation critique
- Text linguistics, discourse analysis, ethnographic linguistics
- Foreign language acquisition
- Language and evolution
- Psycholinguistics
- Romance and Germanic languages (also in a comparative perspective)
- Grammar studies (e.g. standard vs. non-standard varieties; historical change)

Examples of theses

- Internal corporate communication in a digital context
- Rhetorical moves and linguistic characteristics in private hate messages
- Developing a framework for quantifying success on social media (focused on misinformation; Cog.Sem.)
- The conversational characteristics of online-meetings
- Vaccination discourse on Israeli Facebook
- The discourse of depression on Greek Reddit
- Hædetale i danske online-medier
- Anti-vaccinationsdiskursen på danske Twitter
- Høflighed på dansk - spørgeskemaundersøgelser
- Creative writing in second language learning (product thesis: textbook and teacher's manual)
- Mnemonic-scaffolding and circular syllabus design and their effect in second language vocabulary learning (Cognitive Semiotics)
- Citatkonditionalis i moderne italiensk talesprog
- Oversættelse og kultur – en analyse af kulturbundne elementers gengivelser i en dansk oversættelse af "Il giorno della civetta" af Leonardo Sciascia
- Leksikaliseringsmønstre i oversættelsen teori og praksis. Komparativ undersøgelse af leksikaliseringsmønstre i danske og italienske bevægelsesverber og substantiver
- Oversættelse i teori og praksis med udgangspunkt i egen oversættelse af Enrico Deaglios bog "La banalità bene" (produktspciale)
- Dialektiske interferenser i skriftligt italiensk hos padovanske børn. En empirisk undersøgelse



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Research areas/Areas of supervision

- Phonetics and Phonology
- Bilingualism
- Second-language acquisition
- First-language acquisition
- Language and pre-literacy intervention
- Language and pre-literacy assessment
- Language acquisition in hearing-impaired

Examples of these

- Perception ved indlæring af nye ord hos danske hørehæmmede førskolebørn: Diskrimination af initiale konsonanter
- Forebyggelse af læsevanskeligheder i børnehvealderen - Evidensbaseret prædiktio n og intervention
- En undersøgelse af om Reciprocal Teaching kan forbedre sprogforståelsen i læsning hos tosprøgede elever i de yngre klasser i folkeskolen
- Otitis media og sprogudvikling – En kvantitativ undersøgelse af sprogudviklingen hos danske børn i treårsalderen med historik for otitis media
- The Phonological Development in Danish-speaking Children
- Voksne hørehæmmedes identifikation af danske konsonanter i stilhed og støj
- Er piger bare dygtigere? En undersøgelse af kønsforskelle i sproglige kompetencer hos treårige baseret på national sprogvurdering



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Research areas/Areas of supervision

Language processing:

- Phonetics/phonology
- Foreign language learning
- Arabic phonology/morphosyntax
- Danish phonology/morphosyntax

Parkinson's disease:

- Deep brain stimulation (DBS)
- Basal ganglia
- Response inhibition
- Verbal fluency

MEG/EEG:

- Auditory processing
- M/EEG methods generally speaking
- Experimental design for neuroimaging

More tangentially related topics:

- Musical processing in cochlear implantees
- Musical feature processing in the brain
- Multimodal (e.g. audio-visual) sensory processing

Examples of theses

- Structural priming from arithmetic to language
- Investigating the application of 3D CNNs to whole-brain fNIRS data and transfer learning
- Inconsistencies detected in the processing of human emotional and non-emotional auditory and visual stimuli; an fNIRS study
- Exploring fNIRS and verbal reporting as complementary methods for neuroanthropology research
- Selective action verb impairment in Parkinson's disease patients when reading naturalistic stories
- Impaired action language processing in Parkinson's disease when reading naturalistic texts
- Developing Eye-Cue: Implementing augmented reality cues to relieve freezing of gait in Parkinson's disease - A case study



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Research areas/Areas of supervision

I am interested in the below research topics at the levels of brain & behaviour:

1) Interpersonal synchrony:

How do humans synchronize rhythmic actions such as music with one another?

2) Perception & production of auditory rhythms:

How do humans perceive and produce auditory rhythms?

3) Turn-taking in human communication:

How do humans take turns across different forms of communication (e.g., musical interaction, conversation)?

Methods used:

- Neural: Electroencephalography (EEG)
- Behavioural: MIDI, capacitive sensors, Bela (<https://bela.io/>)
- Coding: MATLAB/C-shell/C++ (basic)

Examples of these

- Neural and behavioural correlates of musicians' natural frequencies in music (McGill University)
- Endogenous rhythms influence interpersonal synchrony (McGill University)
- Match me if you can: Continuous dynamics of learning to coordinate auditory-motor rhythms with a partner (Central European University)
- Neural entrainment as a mechanism of rhythm processing in music and language (Aarhus University)



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Research areas/Areas of supervision

- Computational neuroscience
- Predictive coding
- Data science
- Disorders of the mind

Examples of theses

- The diagnostic predictiveness of interindividual differences in susceptibility to illusory control
- Inside the triad - a computational exploration
- The role of dopamine in a volatile social decision-making task with active inference and a hierarchical Gaussian filter



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Research areas/Areas of supervision

- Experimental semiotics
- Social cognition
- Embodied communication
- Joint action
- Action planning and control
- Joint music performance
- Shared representations
- Behavioral synchrony
- Social learning

Examples of theses

- Dissociating Movement Variability and Speed in Intentional Joint Action Coordination
- Motor Coordination and Task Representations in Joint Action
- Learning Time Coordination in Joint Action and the Effects of Theory of Mind Ability
- Do You Want to Play Piano with Me? A Study on Shared Learning in Music Performance
- Transfer of Learning in Joint Action



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Research areas/Areas of supervision

- Early language development Early childhood interventions
- Quality of the learning environment (daycare/home)
- Early assessment (language, pre-literacy, math, socioemotional skills)
- Professional development (teachers)

Examples of theses

- Kvaliteten af børns ordforråd som indikator for senere skoleudvikling
- Fra afprøvning til test. En undersøgelse af otteårige med og uden SLI's færdigheder i præteritumbøjning omsat til praksis
- Børns tilegnelse af tidlig gestik
- Ensartetheden i den danske logopædiske testning med Reynell og Sproglig test 1



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Research areas/Areas of supervision

Clinical Linguistics:

- Dyslexia
- Reading Comprehension
- Autism Spectrum Disorder
- Working Memory and Language Disorders

Child language development:

- Phonological development
- Child-directed speech
- Language development in school-age children

Speech Acoustics:

- Voice quality
- Speech processing
- Modelling prosody in clinical groups

Methods:

- Quantitative Analysis
- Online Experiments
- Acoustic Analysis
- Meta-Analysis
- Network Analysis
- Experimental Methods

Examples of theses

- Kan skærmlesning optimeres? En undersøgelse af læseoptimerende tiltag og bevidsthedsskabende læsestrategier
- Arbejdshukommelsen og skriftsprogsvanskeligheder - Et foreløbigt studie af arbejdshukommelsen hos personer med dysleksi og dyskalkuli
- "Jeg snakker hele tiden, far - jeg holder slet ikke pause". En interventionsundersøgelse af et video-SMS-forløb til forældre med børn i vuggestuealderen.
- Vanskeligheder med lokal kohæsion hos studerende med skriftsprogsvanskeligheder
- RAI00: Redskab til automatisk individuel opsætning af et ordforslagsprogram
- Los, las... ¿y les? Assessing the cognitive effort of gender-neutral language in Spanish role names
- Investigating the role of mouthing in Greek Sign Language, and its relationship with lexical access for congenitally deaf and bimodal adults: An online priming study
- Syntaktisk kompleksitet, arbejdshukommelse og dysleksi i videregående uddannelse
- Authorship Analysis: Document Clustering for Digital Text Forensics
- Does musical training affect the speech perception abilities of cochlear implant users?
- Udvikling Af Stavekompetencer - en pilotundersøgelse af dysleksimaterialers effekt i den almene undervisning
- Udvælgende opmærksomhed og kognitiv kontrol hos dyslektiske folkeskolebørn - et kvantitativt studie af ordblindes opgaveløsning, selvregulering og arbejdshukommelsesstrategier
- Læseforståelse og dysleksi på lange videregående uddannelser: En undersøgelse af clozetest-formatet og dets gyldighed som læseforståelsestest på en kontrolgruppe af universitetsstuderende.
- Dyslexia - using spelling errors to qualify self-reports



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Research areas/Areas of supervision

Child language development:

- Phonological and lexical development
- Statistical learning of language
- Online sentence processing (*intermodal preferential looking*)
- SES-related predictors of language development
- Parent-child interactions, child-directed speech

Language processing:

- Artificial language learning paradigms
- Role of phonetics on language processing
- Phonetic reduction in Danish and psycholinguistic implications

Eye tracking:

- Application of eye tracking to topics in cognitive science/linguistics at large

Examples of theses

- Look at me, I'm talking to you: Using eye tracking to investigate meaning extraction in communication
- When fish sell clerks: Linguistic processing in clear and noisy conditions
- The eyes hold important cues to human mate choice
- What makes an art expert? Investigating the effect of briefing on the perception and evaluation of modern art
- Aesthetic perception and evaluation
- Effects of commercials on consumer behavior: An eye-tracking study



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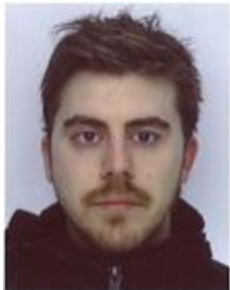
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Research areas/Areas of supervision

- Interaction
- Conversation analysis
- The grammar of talk-in-interaction
- Linguistic ethnography
- Ethnographically based studies of language use and interaction more generally
- Video-observation
- Danish grammar
- Danish phonetics and phonology
- Interactional linguistics, emergent grammar, construction grammar, dialogic grammar
- Second language acquisition
- Children's interaction
- Discourse analysis, text analysis
- Bilingual, multilingual, plurilingual interaction
- Qualitative sociolinguistics
- Post-structuralist linguistics

Examples of theses

- Selv-initieret selv-reparatur i dansk samtaleprog
- Samtaleri: Et dialogbaseret læringsmateriale til undervisning i dansk som andetsprog
- At springe ud af skabet – en lingvistisk-etnografisk, queerteoretisk undersøgelse af homo- og heteroseksuel identitetsarbejde
- Samarbejdende børn – En lingvistisk etnografisk konservationsanalytisk undersøgelse af sprog og bevægelser i børnehavebørns sociale interaktioner
- Samtalegrammatik i skriftlig online interaktion – en digital-samtaleanalytisk undersøgelse af udvalgte samtalegrammatiske fænomener på facebook
- Æv bæv – Et samtaleanalytisk indblik i vurderinger i danske, naturlige samtaler
- Investigating interlanguage and cross-linguistic influence in the foreign language classroom
- The function of the foundation field in Danish talk-in-interaction. On the intersection of information structure, interactional organization and syntactic coordination
- "Vi er nogle der bruger det!" - Danish gender-inclusive pronouns in theory and practice 1942-2021
- The usage of the Danish "godt" and "gerne" in different sentence constructions are influenced by the context e.g. in a command or a invitation
- Ukrainian speakers learning Danish Insights from a linguistic ethnographic fieldwork



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Research areas/Areas of supervision

Cumulative cultural evolution, e.g.

- Social learning
- Cultural transmission chains

Social cognition, e.g.

- Social influence
- Metacognition
- Mentalising
- Advice-taking

Group decision-making, e.g.

- Perceptual decision-making
- Collective intelligence
- Group behaviour
- Wisdom of crowds

Individual differences, e.g.

- Structural neuroimaging
- Behaviour/Domain-generalizability

Experimental Semiotics, e.g.

- Emerging sign-systems
- Conventionality

Art-Science collaboration projects

- I work in the EER project <https://eer.info/>

Abstraction in human cognition

- I work in the Traincrease project <https://traincrease.uw.edu.pl/en/main/>

Examples of these

- The effect of deliberation on metacognitive skills in climate change knowledge: rethinking the wisdom of crowds
- Drawn from memory: Compression in cultural transmission
- Beyond the dyad: Social cognitive mechanisms in larger groups
- Does the Voice Gender Matter for our Decisions?
- Social influence, cognitive processes and how these mechanisms manifest themselves as influencer marketing in the digital world
- Group composition and diversity in collective decision-making: recommendations for applications at the workplace
- The impact of colours on the human mind
- Investigating individual differences between social advice-taking and brain structure using diffusion magnetic resonance imaging
- What makes you smart? Examining the role of gray matter density, iron and myelin on intelligence



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Research areas/Areas of supervision

- Experimental studies of Language evolution/change
- Joint problem solving
- Dialogue
- Gesture
- Extended mind
- Natural Language processing
- Sound symbolism
- Creativity

Examples of these

- Investigating the cultural transmission of prehistoric symbolic behavior
- What gesture reveals about event conceptualization: An experimental approach to the communication of transitive event structure
- Real-life attitude changes through episodic simulation and the role of emotional arousal
- Expanding Insights From Agent-Based Modelling Through Intelligent Conversational Interfaces
- Assessing Factor Structure and Longitudinal Measurement Invariance of Mindfulness Measures Using Exploratory Structural Equation Modeling
- Browser-based platform with templates used for pedagogical interventions
- Dominance and conversational dynamics in dyads and triads
- Mapping the lexicon for sound in Danish, Norwegian and English
- Informational Synergies in the HCRC map task corpus
- Environmental Constraints on Cultural Conversations
- Coordination in Joint Problem Solving. A multidisciplinary Approach to Reconstructing Communicative Abilities in Our Genus
- The Linguistic Relativity of Synesthetic Pitch Metaphors



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Research areas/Areas of supervision

Consciousness, awareness and attention:

- How to measure subjective experience
- Neural correlates of consciousness

Electro- and magnetoencephalography:

- Somatosensation
- Visual perception
- Sensory expectation
- The cerebellum
- Parkinson's Disease
- On-scalp magnetoencephalography
- Source reconstruction

Programming pipelines:

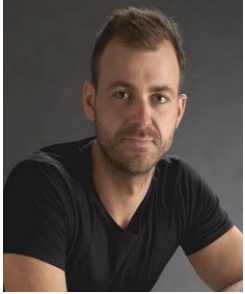
- MATLAB
- Python
- R

Related topics:

- Primate cognition
- Mixed models fitting and machine learning
- Philosophy of Mind

Examples of theses

- Hjernens signalstoffer og aktivitet hos personer med muskeltæknedsættelse, betydning for diagnostik og udvikling af hjælpemidler
- Breathing in the Brain: A computational approach
- Random Matrix theory based denoising of redundant neuroimaging data
- Expectation-related activity in the cerebellum during somatosensory perception
- Selective Auditory Attention and the Influence of Expertise
- Perceptuel bevidsthed i henhold til detektions- samt diskriminationsopgaver
- Cortical alpha waves as a neural correlate of attention



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Research areas/Areas of supervision

Examples of theses

Cognitive Development:

- Play & Playfulness
- Play across development
- Cognitive models of play
- Play fighting
- Risky play / adventurous play
- Exploratory play
- Enjoyment
- Animal play
- Playing with fear / recreational fear / horror media

Cognitive Science of Religion:

- Religious experiences
- Divination
- Agency Detection

Methods:

- Mobile Eye Tracking
- Heart rate (light, unobstrusive setup, Firstbeat. Bodyguard 2)
- Virtual Reality

- The role of play in divergent thinking
- Exploring the connection between sexual curiosity and play



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Research areas/Areas of supervision

Quantitative approaches to areas in the vicinity of

Brain and body:

- Cognitive neuroscience
- Basic physiology and cognition (heart rate, respiration, hormones, sleep, etc.)

Language and mind:

- Lateralization in language, brain and behavior
- Language and attention/space
- Language as a window to personality
- The inner voice and self-talk in relation to cognition, mood and personality

Sound and fury:

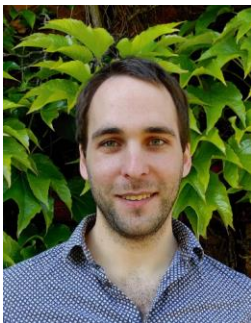
- Emotion & mood
- Music and sound processing

Sex and gender:

- Sex and gender differences in language, brain and behavior

Examples of these

- Revisiting the Bayesian Model for Novel Word Learning
- Objects as Signs – an experimental study.
- Does it sound alive? - a auditorily perceived cues of animacy
- Dilated Pupils As an Attractor of Visual Attention: an Eye Tracking Study
- Music and meaning-making. The effects of music in cross-modal domains
- Beskrivelse og praktisk afprøvning af forventningsopbygning i musik og hjerne med fokus på "Mismatch Negativity" MMN
- When Depression Speaks - A Computational Analysis of Quantitative Differences in Word Frequencies Between Danish Individuals with First-Episode Major Depressive Disorder and Healthy Controls
- What does the inner voice do? Self-regulation in sport and cognitive psychology



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Research areas/Areas of supervision

Examples of theses

- Computational psychiatry
- Cognitive modelling
- Reinforcement learning
- Agent-based modelling
- Signal processing
- Software engineering
- MCMC sampling methods

Area of interest:

- Beliefs and delusion
- Individual and collective memory
- Brain body interaction
- Cardiac interoception
- Decision making
- Metacognition



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Research areas/Areas of supervision

- Meaning-making in Art and Perception
- Meaning-making in Art and Language Theories of Text Types and Genres
- Topics in Cognitive Linguistics/Semiotics at large
- Philosophy of Mind and Theories of Consciousness
- Communicational strategies at large (adds, brands, framing, and discourse)

Examples of theses

- Political Communication - Framing and Conceptual Metaphor (thesis is in danish)
- Synthesizing Ritualized Behavior and Religious Cognition
- Din Hjerne på Reklamer - Hvorfor nogle reklamebilleder er mere fængende end andre?
- Morality as Purity - Studying Moral Cognition from the Perspective of Conceptual Metaphor Theory and Moral Psychology
- Meaning-making in literary art: A cognitive semiotic study on simultaneous narration
- Perception and Representation of Motion, Time, Sound, and Symbols in Comics
- Poesiens styrmand - Om Klaus Høecks poetik og kybernetik
- En kognitiv tilgang til visuel kunst
- Framing, narratives, and conceptual metaphors as propaganda techniques for psychological and informational warfare



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Research areas/Areas of supervision

- Sociolinguistics
- Anthropological linguistics
- Historical linguistics
- Contact linguistics
- Pidgins and creoles
- Amerindian languages
- Genderlects
- Twins' languages
- Language planning and policy
- Multilingualism
- Deaf studies
- Canada
- Nuristani languages
- Typology
- Language description

Examples of theses

- Fonologisk kompleksitet i dansk – en diskussion af det danske lydsystems synkrone og diakrone kompleksitet fra et typologisk perspektiv.
- Sproglig socialisering – En lingvistisk etnografisk tilgang til en caseundersøgelse fra en dansk institution med tosprogede børn.
- "Må jeg låne your pencil, please?". The whys and whens of codeswitching in schoolchildren's conversations.
- Rosa Mexicano. The meaning of the Mexican Spanish color terms of Oaxaca.
- The spread of English in present Europe: Comparing the popularity of English in different parts of Europe. A survey among volunteers in an international organization.
- African structural continuity in Atlantic creoles: phylogenetic network analysis applied to structural-typological data.
- The performance of femininity in rap lyrics.
- Did the Neanderthals speak? – A review of the evidence.
- Kæltringelatin. Kryptolekter blandt omrejsende underklassegrupper på landet i Skandinavien mellem år 1700 og 1945.
- Linguistic Fieldwork: Experience and tense and aspect system description of a Neo-Aramaic dialect of Diana, Iraq.
- Sproglige stereotyper i danske film og en sprogholdningsundersøgelse af danskernes holdning til den multietniske ungdomsstil.
- *The Instruction of Literacy for Adult Newcomers in Highly Literate Societies:*
- Lang Belta: the creole of space. A case study of an invented creole



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Research areas/Areas of supervision

- Semantics and pragmatics
- Language typology and variation
- Natural Language Processing and Machine Learning
- Computational Linguistics
- Social media analysis
- Causality/causal inference modeling
- Sound symbolism
- Social meaning/sociopragmatics

Examples of these

See student paper titles resulting from courses/seminars I've taught at AU:

- 2019 Research Workshop Computational Linguistics papers: https://aunlp.github.io/LaC20/#!2019_Papers.md
- 2019 Natural Language Processing papers: https://aunlp.github.io/LaC20/NLP_posters_flier.pdf

Some recent theses:

- Improving coreference resolution accuracy on scientific texts using pronoun masking and document segmentation
- Offensive Language Detection in Danish
- Creating NLP tools for an analysis of Danish News Data
- Topic Modeling Danish Covid-19 Tweets
- Towards explainable Embeddings: XAI using topic modeling
- EMODa: An Interactive Tool for Emotion Classification in Danish
- How Individual Perceptions & Societal Constructions Affect Compliance During COVID-19: A two-fold Methodological Mixed Effects Approach
- Empathy and Political Polarization in Coverage of the Black Lives Matter Movement: An NLP Approach



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[https://pure.au.dk/portal/da/persons/riccardo-fusaroli\(3f72f2a1-e93a-4689-872c-c11c9703c1cc\).html](https://pure.au.dk/portal/da/persons/riccardo-fusaroli(3f72f2a1-e93a-4689-872c-c11c9703c1cc).html)

Research areas/Areas of supervision

Social interactions (free and task-oriented):

- Quantitative corpus analysis
- Experimental investigations
- Agent based models

Language, Voice, Gesture and Movement in:

- Autism Spectrum Disorders
- Schizophrenia
- Affective disorders (Depression, Bipolar)

Language acquisition

- Corpus analysis (e.g. Childes)
- Lexical networks
- Child Directed Speech
- Turn-taking

Computational cognitive modeling

- e.g. Models of information integration in social contexts
- e.g. Implementation and validation of cognitive models in a probabilistic framework (Stan)

Natural Language Processing (e.g. large corpora of transcripts, or social media)

- Speech processing
- Interactive alignment

Examples of theses

List of suggestions for projects within my research interests:

<https://docs.google.com/spreadsheets/d/1tllHVO-W9NBF5ba1gUplGQ50lmFQfX8x8l0434xnxnAA/edit?usp=sharing>

Examples of previous theses:

- Computational models of categorization in individual and dyadic joint decision tasks
- Generalizability of machine-learning based speech markers of neuropsychiatric conditions
- Semantic exploration and exploitation in child-caregiver conversations



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Research areas/Areas of supervision

Natural language processing

- Clinical NLP (e.g., predicting clinical traits from text)
- Linguistic markers of cognitive traits
- Humanitarian NLP
- Human- vs. AI-generated text
- Agent-based simulations with conversational agents

[Computational] social science

- Analysis of social media data
- Agent-based simulation of social behavior
- Mapping emotions & attitudes towards EU from text
- Text analysis for political science

Neuroimaging and open science

- Naturalistic fMRI
- (Meta)analysis & open data (Neuroscout; Neurosynth; pliers)
- Linguistic and auditory representations in the brain

Research methods

- Reproducibility, replicability, and generalization
- Open science practices
- Benchmarks for cognitive / social sciences

Examples of these

- Expanding insights from agent-based modeling through intelligent conversational interfaces: a proof-of-concept study in the context of filter bubbles
- BotTown: a computational framework to study language evolution using AI systems and agent-based simulations
- NLPsych: Building an open-source framework for the analysis of linguistic markers of psychiatric conditions
- Mapping auditory representations during naturalistic fMRI using Neuroscout [neuroscout.org]
- Modeling discourse around the European Union using text-based survey data or a multilingual Twitter corpus
- From cognitive to clinical traits: pre-training LLMs on non-clinical populations for lightweight fine-tuning on clinical traits
- Developing a generalizable method to map word vectors onto interpretable cognitive features (e.g., abstraction)
- Quantifying the role of non-lexical items in language representations from transformers



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Research areas/Areas of supervision

- Language description and documentation
- Historical & comparative linguistics
- Grammaticalisation
- Linguistic typology
- Cognitive-functional-semiotic grammar
- Sign languages - deaf & alternate
- Australian Aboriginal languages
- Khoe languages
- History of linguistics
- Possession
- Interpersonal grammar and joint attention
- Nominal and verbal classification
- Kinship
- Semantics and pragmatics
- Narrative
- Spatial language and cognition

Examples of theses

- Reta phonology, morphology and syntax. A grammar sketch of a Papuan language of Nusa Tenggara Timur, Eastern Indonesia
- Blumps and twipitts: how native speakers of English perceive sound and symbolic elements in nonsense words
- An initial description of the phonetics and phonology of Kurdish Sign Language
- The phonology of Zaachila Zapotec. A segmental and suprasegmental analysis
- ORSUMM recognizes speakers using motor movements
- Typological variation of syntactic roles
- Relationen mellem læsning og hurtig automatisk benævnelse