MEi:CogSci Projects for Specialisation

Projects at the University of Vienna

Project	Description	COVID-19	Qualifications	Places	Level
Innovation, organization(-al cognition), design, and Enabling Spaces Univ. Prof. Dr. Markus Peschl Cognitive Science research Platform & Dept. of Philosophy website	Our guiding question concerns the topic of "how does novelty come into the world?". Projects are offered in the fields of innovation (theoretical as well as applied projects; on an individual/cognitive and/or on a collective/ organizational level), creativity, design, organizational design, as well as studying and developing how space enables and supports innovation- and knowledge work (e.g., in the sense of the extended/enacted cognition approach), and how such spaces can be designed. Projects range from (bit are not limited to) theoretical foundations (cognitive, epistemological, organizational, systems science, etc.), educational issues, such as acquiring innovation skills and mindsets, to the design of Enabling Spaces, such as office spaces or learning environments. Project work in small groups/teams is welcome.		Interest and some experience in innovation, design, architecture, openness, and creativity	2-3	IR II S-I MA
Making different tools from the same material in Goffin's cockatoos Alice Auersperg Messerli Research Institute, Comparative Cognition Unit/Goffin Lab website	Goffin's cockatoos have the capacity to make and use tools. In order o determine abilitiey to plan the function of a tool during manufacture, we will test if they can use the same material to make up to three tools for completely different purposes.		BA, experiments in handling animals, preferably experience in behavioural experiments	1	MA

Levels: IIRI: 10 ECTS (Semester 2)   S-I: 10/15/20 ECTS (Semester 3)   MA: 25 ECTS Master's Thesis (Semester 4)

Composite tool manufacture in Goffin's cockatoos Alice Auersperg Messerli Research Institute, Comparative Cognition Unit/Goffin Lab website	Composite tool use is an important aspect of human technical evolution. Goffin's cockatoos have the capacity to make and use tools and they are stacking objects during object play. Here we will test if they can purposely create a funtional tool by adding several separate components.		BA, experiments in handling animals, preferably experience in behavioural experiments	1	MA

Art history and empirical methods Dr. Luise Reitstätter Department of Art History/Laboratory for Cognitive Research in Art History (CReA) web	The aim of the Laboratory for Cognitive Research in Art History (CReA) is to expand art historical knowledge through the use of empirical and experimental methods. The laboratory's projects deal with traditional art historical questions about artworks and their perception as well as transdisciplinary issues of empirical aesthetics, visual culture and museology. Classical methods of art history are combined with digital humanities and social science approaches – from discourse analysis to database construction, from online questionnaires to open interviews and mapping. Research into eye movements, investigated during the beholding of art with remote and mobile eye trackers, is an area of special interest.	Interest in empirical work in combination with arthistorical questions.	up to 4 | IR II, S-I-PJ, MA

Current or upcoming projects:

Art User/Screen Viewer
Zoya Dare, PhD project
This research focuses on the aesthetic experience on the smartphone. Two studies will be conducted starting in October 2021, one on a remote eye tracker and another on a smartphone device.

Seeing history
Judith Herunter, MA thesis
An eye tracking study on the perception of narrative lines in painting, to be conducted with approx. 80 participants in autumn 2021.

Art Perception in a Museum Environment
Anna Miscenà, Carola Korhummel, Zoya Dare, PhD projects
The study will analyze different aspects of the aesthetic experience of art in a museum environment. Quantitative data will be collected with mobile eye-tracking devices (Tobii glasses) and qualitative data will be collected in the form of short interviews with museum visitors. Summer term 2022.

Right to the Museum?
Luise Reitstätter, Karolin Galter, Jubiläumsfonds-Projekt
Which museum concepts of the public can we trace in archival documents from founding statues to current mission statements? And, how are museums perceived by the local audience today? These two questions led our archival and field

	research in the last months. Starting in October 2021 we will delve into comparative data analysis.			
Improvisation Dr. Lukas Zenk Donau-Universität Krems - Universität für Weiterbildung, Fakultät für Wirtschaft und Globalisierung, Department für Wissens- und Kommunikations-management web	The aim of this research project is to develop a framework for organizational improvisation. In this framework, factors for the complex and multidimensional ability of people to improvise in their organizational situation will be identified and described. Based on this basic scientific research, the framework will be used to develop prototypical designs for interventions in order to practically support the improvisational ability of people in organizations. (improvisation.science)	Virtual collaborations possible. Please contact Dr. Lukas Zenk	1-2	IR II S-I
Lexical and morphological acquisition Prof. Wolfgang Dressler Department of Linguistics, University of Vienna web	Acquisition of lexical or morphological elements from a point of view of cognitive science: typical or handicapped development	psycholinguistics	3	IR II S-I MA
Word-formation constructions / Cognitive linguistics and corpus linguistics Dr. Stela Manova ICLTT/Philosophy web	Usage-based research on the word-formation patterns in a language. The approach followed is a distributional one, i.e. the combinatorial properties of an element (a piece of word structure) in a corpus serve for that element's identification and definition. The goal is to better understand the nature of the pieces of structure that serve for construction of words.	Specialization in cognitive linguistics and corpus linguistics / Basic knowledge in linguistics	1	IR II S-I MA

Word-formation in the mental lexicon / Cognitive linguistics and psycholinguistics Dr. Stela Manova ICLTT/Philosophy web	This research is with a focus on the organization of the mental lexicon. By testing native-speaker intuitions, the idea is to establish what is listed in the lexicon and how words are constructed there.		Specialization in cognitive linguistics and psycholinguistics / Basic knowledge in linguistics	1	IR II S-I MA
Natural Language Processing (NLP) without grammar: algorithms and applications Dr. Stela Manova ICLTT/Philosophy web	Recent approaches to NLP do not involve grammar (linguistic information of any kind) but treat all words as units of the same type and model human language with the help of neural networks that, roughly speaking, control for frequency of use of words and their combinations (n-grams). In a similar fashion, this project seeks to establish the possible applications of NLP based on algorithms (with a focus on the Fibonacci sequence), n-grams and frequency.		Specialization in cognitive linguistics and psycholinguistics / Basic knowledge in linguistics	1 (+1)	MA (+ IR-II, S-I)
Individual differences in second/foreign language learning (including polyglotism, and language learning through non-formal methods). Susanne Maria Reiterer Unit of Language Learning and Teaching Research web	For students interested into second language acquisition in general, but especially the psycho-cognitive aspects of individual differences in language learning ability (language aptitude) and interfaces to other cognitive systems (musicality, personality, memory…) and language learning methods in non-formal circumstances (e.g. online, new media).	It should be possible according to the current rules and regulations (subject to the provisions) to meet on site in the lab/office/department with mask and caring for safety distances. Naturally a large proportion (>50%) of work can always be carried out from home / distance (home office principle). Online/virtual discussion meetings also possible.	Experience in or interest for testing human participants, knowledge about psychometrics, statistics (e.g. SPSS, Excel), qualitative/and or quantitative psycho-social research methods. Willingness to pursue secondary research on theoretical and practical aspects concerning the individual project.	1	IR II S-I (10 ECTS) MA(?)

Language Café and multilingual societies Susanne Maria Reiterer Unit of Language Learning and Teaching Research web	A second research focus concerns non-formal language learning strategies which are emerging nowadays in multilingual societies or areas, as e.g. the phenomenon of the "language cafe".	It should be possible according to the current rules and regulations (subject to the provisions) to meet on site in the lab with mask and caring for safety distances. Naturally a large proportion (>50%) of work can always be carried out from home / distance (home office principle). Availability of cafes is problematic in COVID times generally because of governmental restrictions in public places/gastronomy.	Experience in or interest for testing human participants, knowledge about psychometrics, statistics (e.g. SPSS, Excel), qualitative/and or quantitative psycho-social research methods. Willingness to pursue secondary research on theoretical and practical aspects concerning the individual project.	1	IR II S-I (10 ECTS) MA(?)
The (phon)aesthetics of second language learning – phonetic chill Susanne Maria Reiterer Unit of Language Learning and Teaching Research web	This new research project focuses on the aesthetic, psycho-acoustic, cognitive, social and emotional motivations of why individuals report to perceive certain foreign languages as more "attractive", "melodious" etc. and thus more rewarding/interesting to be learned. For students interested in foreign languages, especially sounds of languages.	It should be possible according to the current rules and regulations (subject to the provisions) to meet on site in the lab with mask and caring for safety distances. Naturally a large proportion (>50%) of work can always be carried out from home / distance (home office principle).	Experience in or interest for acoustic stimulus creation, human voice, voice recordings, testing human participants, knowledge about psychometrics, acoustic software (e.g. Praat, Adobe Audition). Willingness to pursue secondary research on theoretical and practical aspects concerning the individual project.	1	IR S-I (10 - 15 ECTS) MA

Levels: IIRI: 10 ECTS (Semester 2)   S-I: 10/15/20 ECTS (Semester 3)   MA: 25 ECTS Master's Thesis (Semester 4)

Literary and Cultural Representations of Emotion Christa Knellwolf King Dept. for English and American Studies web	The research project investigates new methodologies for the interpretation of literary and cultural representations of emotion.		Interest in the interdisciplinary crossovers between literary studies and scientific approaches	1	IR II
Models of Personality and Emotions Paolo Petta Institute for Artificial Intelligence, Medical University of Vienna web	Project work, optionally also as complement to the related courses			3-4	S-I
Serious Games in Health Care Paolo Petta Intelligent Software Agents and New Media at OFAI (Austrian Research Institute for Artificial Intelligence) web	We are looking for students interested to conduct research in a range of disciplines in the domain of serious games in health care. Candidates will gain a broad overview of the state of the art in serious games research before focusing on a specific research topic. You will familiarise with the many perspectives and steps required in implementing a serious games project, from a first idea to a full concept that is scientifically sound, features interesting and conducive game mechanics, and is viable for practical deployment of impact.		Articulated interest (expression of motivation) in some sub-area of the application domain. Working knowledge of the cores of cognitive science paradigms and their implications in specific application settings. Availability for continuous active participation in group work and capability of carrying out assigned tasks (specifics to be developed individually).	3-4	S-I MA

[See description]	If you are interested in research on	Please make an appointment for more details	1-2	IR II S-I
[Soheil Human](#) Institute of Information Systems and New Media, Vienna University of Economics (WU Wien) [web](#)	**Accountability and controllability of computational cognitive models** **Cognitive Personal Assistant Systems** **Human needs** **Human values** **Societal consequences of cognitive modeling** **Predictive processing** **Framing of information system (nudging)** **Cognitive user interfaces** **Cognitive information economies** **Social imaginaries** **Human-computer interaction** **Intersection of European General Data Protection Regulation (GDPR) and Computational Cognitive Modeling** **Semantic Web Technologies, Knowledge Engineering and Ontology development** **Application of computational cognitive modeling from socioeconomic perspective** please make an appointment for more details.			

| **Incentivising Open Data Exploration through Needs Management** | Needs satisfaction plays a fundamental role in well-being of biological cognitive systems, including humans. Hence, Understanding citizens' needs is crucial for developing a successful social and economic policy. This notwithstanding, acquisition, representation, analysis, and visualisation of citizens' needs remain areas where support by dedicated computational tools is very limited. Also applications of needs data in the design of online services has not been thoroughly analyzed. | Internship position | 1 | IR II S-I |

Soheil Human

Institute of Information Business at the Vienna University of Economics and Business

web

Needs satisfaction plays a fundamental role in well-being of biological cognitive systems, including humans. Hence, Understanding citizens' needs is crucial for developing a successful social and economic policy. This notwithstanding, acquisition, representation, analysis, and visualisation of citizens' needs remain areas where support by dedicated computational tools is very limited. Also applications of needs data in the design of online services has not been thoroughly analyzed.

The goal of this project is to use existing needs profiles for organizing the catalogs of Open datasets and Open Data Apps, available at at the Open Government Portal of Vienna (https://open.wien.gv.at/site/open-data/) and at the independent Austrian Open Data Portal (https://opendataportal.at).

[BFUP] Beno, M., Figl, K., Umbrich, J., Polleres, A. (2017) Open Data Hopes and Fears: determining the barriers of Open Data. CeDEM 2017 https://aic.ai.wu.ac.at/~polleres/publications/Beno-etal-2017CeDEM.pdf
[HFKS] Human, S., Fahrenbach, F., Kragulj, F., Savenkov, V. (2017). Ontology for Representing Human Needs. Proc. of 12th Intl. Conference on Knowledge Engineering and Semantic Web, Szczecin, Poland. (to appear: see preprint at https://github.com/openeed/ond-family)
[OpeN] The OpeNeeD Ontology: https://github.com/openeed
[KaK] Kaiser, A., & Kragulj, F. (2016). Bewextra: Creating and Inferring Explicit Knowledge of Needs in Organizations. Journal of Futures Studies, 20(4): pp. 79-98.
[Dea1] Dean, H. (2014). Understanding human need. Bristol: Policy Press.

Internship position

You will develop a web catalog of open datasets and apps based on different principles of artefact grouping. Given an existing citizen's need profiles (encoded as the ontology [OpeN]), a correspondence between the needs on the one hand, and datasets and apps on the other hand will be established, and the digital artefacts (datasets & apps) will be grouped according to needs they are related to. A user-experience experiment will be conducted to compare the traditional interface (based on predefined categories) and the need-based one to assess if organising the data according to the identified needs has positive impact on user experience, and motivate users to invest time into exploring Open Data.

		Internship position	1	IR II
Ontology Representation of Needs Profiles Soheil Human Institute of Information Business at the Vienna University of Economics and Business web	Needs satisfaction plays a fundamental role in human well being [TaD]. Hence understanding citizens' needs is crucial for developing a successful social and economic policy [Dea1, Dea2]. This notwithstanding, the concept of need has not yet found its place in systems and online tools for citizen participation. In fact, assessing needs itself remains a labor-intensive, mostly offline activity, where only a limited support by computational tools is available. While only a few methodologies for assessing and systematizing needs exist to date, including BEWEXTRA [KaK] developed in the WU Vienna, acquisition, representation and analysis of citizens' needs remain areas where support by dedicated computational tools is either limited or not existing. [Dea1] Dean, H. (2014). Understanding human need. Bristol: Policy Press. [Dea2] Dean, H. (2015). Social rights and human welfare. London: Routledge. [HFKS] Human, S., Fahrenbach, F., Kragulj, F., Savenkov, V. (2017). Ontology for Representing Human Needs. Proc. of 12th Intl. Conference on Knowledge Engineering and Semantic Web, Szczecin, Poland. (to appear: see preprint at https://github.com/openeed/ond-family) [OpeN] The OpeNeed Ontology: https://github.com/openeed [KaK] Kaiser, A., & Kragulj, F. (2016). Bewextra: Creating and Inferring Explicit Knowledge of Needs in Organizations. Journal of Futures Studies, 20(4): pp. 79-98. [TaD] Tay, L., & Dieer, E. (2011). Needs and subjective well-being around the world. Journal of personality and social psychology, 101(2): 354.	In this project you will contribute to the creation of such tools by continuing the digitalization of a needs study, conducted with the citizens of the Vienna quarter Stuwerviertel following the BEWEXTRA methodology [HFKS]. You will help presenting the results of the study with an increased granularity using the OpeNeed ontology [OpeN], and then use SPARQL query language to provide examples of semantic queries against the resulting needs data. The project paper will report on your experiences and ideas for the improvement of OpeNeed, and analyze ways of improving computer support for needs assessment.		S-I

Rethinking Homeorhesis in Biomedical Contexts Isabella Sarto-Jackson KLI web	Biomedical sciences and psychopharmacology draw primarily from the medical model of disease that provides a conceptual framework for the disease-centered model of drug action. This model presupposes that mental disorders are based on a derailment of brain homeostasis. Increasingly more scientists have begun to critically question the disease-centered model of drug action. The shortcomings of the model derive from assumptions of monocausality and effect linearity largely based on a mechanistic view. Yet, explanations using homeostasis neglect ontogenetic trajectories and system-level responses of the organism. This project focuses on the reinstatement of the concept of homeorhesis to supplement explanations of homeostasis. Including homeorhesis as an explanatory process within the medical model aims at facilitating a conceptual shift from a disease-centered to a drug-centered view. To this end, the project aims at gathering converging evidence of psychotropic drug effects to support the idea of homeorhesis in biomedical contexts.		Interest in philosophy and neurobiology	1	IR II S-I MA
Organizational learning and Knowledge based Management ao. Univ. Prof. Dr. Alexander Kaiser Research Group Knowledge based Management, Vienna University of Economics and Business web	We do research in the field of knowledge based management and organizational learning. More precisely, we offer projects upon negotiation in the field of vision development, need-based innovation, organizational (un)learning and systemic coaching.		Motivation to work in an interdisciplinary team; some experience with qualitative research methods preferable; If field work is involved, German skills are necessary	1	IR II S-I

Organizational learning and Knowledge based Management ao. Univ. Prof. Dr. Alexander Kaiser Research Group Knowledge based Management, Vienna University of Economics and Business web	The proposed IR2-topic deals with the operationalization of three previously identified types of knowledge in the context of need-based organizational learning. It is intended for students seeking to explore the intersections of cognitive science and business/organizational related fields in a practical yet interdisciplinary way. Detailed project description here.		Interest in interdisciplinary research and organizational learning.	1	IR II S-I
Reflection about intercultural experiences – intercultural competence development Ingrid Pleschberger, BA BA MSc Head of International Office FH BFI Wien web	Reflection is a widely acknowledged aspect of intercultural competence development. Accordingly, reflection activities such as learning journals or diaries are frequently used as measures to assess and/or facilitate intercultural competence development. However, there is currently no agreement on a uniform definition or a research-based model of reflection that explicitly incorporates intercultural competence (ICC) nor a model of ICC that incorporates reflection. This research aims at providing (1) a definition and concept of RIE, and (2) an operationalised instrument (interview guideline and coding scheme) to assess RIE	Possible tasks: Quantitative and qualitative data analysis of already existing data. Mai – June 2021 data collection (interviews and transcriptions will be paid) via jisti or if possible in person Theoretical work is also possible potential candidates can do the project fully online or a mixture online/on-site.	German and English language skills on a level that allows them to conduct and transcribe interviews And/or Experience with quantitative and qualitative data analysis	3	IR II S-I (10 - 20 ECTS) MA(?)

Experimental induction of social and non-social motivational states Giorgia Silani, Ana Stijovic Department of Applied Psychology: Health, Development, Enhancement and Intervention	In this project, we investigate the effects of a period (8h) spent without social contact or without food on: stress levels (measured using physiological and subjective measures), affective states, motivation to engage with food-related and social content, and basic cognitive abilities. A short-term response to a homeostatic imbalance includes increased autonomic arousal and increased motivation to seek rewards that can relieve the aversive state and reestablish balance. In addition to basic survival systems, such as regulation of nutritional balance or defense from threat, it has been recently suggested that our need for affiliative social contact is regulated by a similar homeostatic system. Although we cannot directly test this idea, we aim to make a first step towards understanding effects of a short-term social isolation on the state of our body, self-reported affective states and motivated behavior, as opposed to a short-term reaction to fasting.		High flexibility, reliability, good time management, ability to work in a team, German and English proficiency	2 + 2	Intern ships (15h / week) + MA (start in Jan./ Feb. 2020)
New hypotheses for research on autism and music, Part 1: Large-scale replication of potential biomarkers in rs-fMRI Giorgia Silani, Christian Gold Department of Applied Psychology: Health, Development, Enhancement and Intervention	**Background:** Autism is a "social disorder", and music is a "social art". Music therapy may help people with autism to develop social engagement, but mechanisms are not clear. Brain areas including the superior temporal sulcus (STS), right temporo-parietal junction (rTPJ), and right supramarginal gyrus (rSMG; relevant for empathy and theory of mind), and functional connectivity between auditory, motor, and sensory regions (relevant for sensorimotor integration) have been suggested to be of relevance. However, these findings were based on relatively small samples. **Methods:** This project will aim to determine structural and functional differences or similarities between people with/without autism in relevant brain areas, using MRI and resting-state fMRI data from a large, publicly available dataset (ABIDE-I and ABIDE-II, combined n>2000). **Relevance:** Given the "replicability crisis" in psychology, the findings from this project will provide a solid basis for future intervention studies of music therapy and related interventions. **Note:** Other projects related to music and autism using different methodology may become available; further information on request.		Desirable: experience with analysing fMRI data; programming skills in MATLAB (or R)	1-2	MA

New hypotheses for research on autism and music, Part 1: Large-scale replication of potential biomarkers in rs-fMRI Giorgia Silani, Christian Gold Department of Applied Psychology: Health, Development, Enhancement and Intervention	**Background:** Many people with autism have a high interest or special skills in music; some can benefit from music-based interventions. However, little is currently known about the ways and the extent people with autism engage in music activities in daily life. **Methods:** Based on previously constructed scales and a currently ongoing survey in other countries, a survey of music engagement will be conducted in an Austrian clinical sample (from clinical institutions in St. Pölten or Vienna, n=50-100) and a matched non-clinical sample. **Relevance:** Better knowledge of music use in daily life, including functional uses of music, will be important to inform the development of future interventions for this population.	Survey methods experience	1	MA
New hypotheses for research on autism and music, Part 1: Large-scale replication of potential biomarkers in rs-fMRI Giorgia Silani, Christian Gold Department of Applied Psychology: Health, Development, Enhancement and Intervention	**Background:** A large multinational randomised controlled trial of music therapy for children with autism spectrum disorder did not find clinical effects; this was in contrast to many smaller trials. One reason may be the heterogeneity of the population, in connection with the focus on a distal downstream outcome. **Methods:** Re-analysis of an existing dataset (n=364) with a focus on individual symptoms that may be linked to specific mechanisms of joint music-making. Path models or structural equation models will be used to determine which of these symptoms at baseline are able to predict clinical benefits. **Relevance:** Better understanding of who on the autism spectrum may be most likely to benefit from music therapy.	Structural equation modelling (SEM) experience	1	MA

Brain-Computer Interfaces Moritz Grosse-Wentrup Research Group Neuroinformatics, Faculty of Computer Science, University of Vienna web	Brain-Computer Interfacing (BCI) enables the control of external devices such as wheelchairs or robotic arms for severely paralyzed patients by mind control. Multiple projects of to advance the state-of-the-art in BCI are available within the research group Neuroinformatics, ranging from cognitive strategies for patient training over feedback design to neural decoding algorithms.	Students should have an interest in working in interdisciplinary research teams, be open to working with actual patients, and have basic programming skills.		IR II S-I MA
Conceptualizing exposure therapy as a dynamic feedback system Prof. Frank Scharnowski Cindy Lor MScDepartment for Basic Psychological Research and Research Methods web	We aim at better understanding and optimizing exposure therapy. Specifically, we investigate psychological, peripheral physiological and neuroimaging measures to computationally model exposure therapy as closed-loop feedback systems.	Motivation to conduct interdisciplinary experimental research; good organization and time management; creativity; basic programming skills (e.g. MATLAB, Python, R, ...) are an advantage	5	IR II, S-I or MA
Real-time fMRI Neurofeedback Prof. Frank Scharnowski Andrew Nicholson, PhD Department for Basic Psychological Research and Research Methods web	We will conduct multiple studies investigating the ability to regulate emotional states using real-time fMRI neurofeedback in both healthy individuals and psychiatric patient populations. This method consists of using brain computer interfaces that provide feedback of neural states using brain imaging.	Independent learners, highly motivated, long-term career aspirations in neuroscience.	5	IR II, S-I or MA

Levels: IIRI: 10 ECTS (Semester 2)   S-I: 10/15/20 ECTS (Semester 3)   MA: 25 ECTS Master's Thesis (Semester 4)

Machine-learning with psychological data Prof. Frank Scharnowski David Steyrl, PhD Department for Basic Psychological Research and Research Methods	Generally, machine-learning techniques are powerful tools for data analysis. Particularly in psychology, where heterogeneous, multimodal data are ubiquitous. We offer the chance to dive into this hot topic and to gain hands-on experience with real world machine-learning applications.		basic programming skills (e.g. MATLAB, Python); enjoying programming	2	S-I or MA
How personality and sex influence problem solving in a highly social fish Dr. Sabine Tebbich Dr. Stefan Fischer Department of Behavioural Biology Konrad Lorenz Insitut of Ethology	We are looking for a motivated student interested in a Master's project in Behavioural Biology and Cognition using a social cichlid (Neolamprologus pulcher) from Lake Tanganyika. The thesis will be part of the WWTF funded project: "Coping with change: Investigating the relationships between behavioural flexibility, stress and early environment". Problem solving is a major challenge for animals especially under rapidly changing environments. How much individuals are able to cope with changing conditions will be determined by their personality and life history. In this project you will investigate the understudied link between individual characteristics and problem solving abilities using targeted behavioural experiments. The work will be based at the Konrad Lorenz Institute for Ethology which is located on Wilhelminenberg in the 16th district.		We are particularly interested in a student with a keen interest in scientific questions, that would like to research fish behaviour and cognition, is able to work independently and in a team. Our daily communications are in English and the student is required to have good knowledge of English and, preferably, the thesis should be written in English.	2	MA

Sliders for decision making Laura Koesten, Torsten Möller Computer Science, Research Group for VDA web	Siders on interfaces provide a range to select an input value. Sliders can restrict users to entering valid values by only offering a valid range, or they can be used to support multi-criteria decision making. In this project we aim to compare different types of sliders for decision making. This includes triangular, binary and single, sliders as well as "scented widgets", which are embedded visualizations to facilitate navigation in information spaces. (See for instance https://dl.acm.org/doi/pdf/10.1145/3240167.3240185) Tasks: • Creating interfaces using different slider types, develop simple alternatives of slider components • Design an online user study (including task design, re-cruitment, usability evaluation) • Analyse quantitative and qualitative data from the user study	Remote collaboration possible	Knowledge in HCI (Human Computer Interaction) and FDA (Foundations of Data Analysis) Programming languages: Python or R	1 IR II S-I
Understanding climate change data Laura Koesten Computer Science, Research Group for VDA web	Data visualisations, such as charts, are often used to communicate data about climate change, both in research and in popular news sources. This project investigates how people make sense of common data visualizations about climate change by conducting interview studies with doctoral researchers and students at the University of Vienna. Tasks: • Collect sample types of charts commonly used with re-spect to climate change (e.g. on social media) • Design and conduct an interview study • Qualitative data analysis	Remote collaboration possible	FDA (Foundations of Data Analysis) VIS (Data Visualization)	1 IR II S-I

Understanding COVID-19 data Laura Koesten Computer Science, Research Group for VDA web	Data visualisations, such as charts, are used frequently to communicate data about COVID-19, both in research and in popular news sources. In this project we investigate the types of questions that are frequently asked during the COVID-19 pandemic and how charts are used to answer them. We will do this by collecting commonly asked questions and conducting a qualitative study about how people answer these questions for themselves using COVID data visualisations. Tasks: • Collect a sample dataset of COVID related questions (from online resources) • Design a study aiming to investigate people's sense-making practices	Remote collaboration possible	FDA (Foundations of Data Analysis) Possibly VIS (Data Visualization)	1 IR II S-I
Data documentation Laura Koesten Computer Science, Research Group for VDA web	Documenting data is as important as publishing it. There are many proposals that describe the content and format of data documentation, capturing the entire data science lifecycle, from collecting the data (for instance using sensors) to cleaning and analysing it. The aim of this project is twofold: 1. To apply these documentation proposals on known and less known datasets to understand how easy to use they are and how subjective documentation practices are. 2. To explore collaborative documentation practices to reduce inconsistencies in documentation. To do this we will investigate the differences when people use traditional metadata schemata versus a more creative setting, such as using Jamboard, to describe a dataset. *Tasks:* • Design, conduct and analyse a qualitative study	Remote collaboration possible	FDA (Foundations of Data Analysis) Basic knowledge of qualitative research methods	1 IR II S-I

Data descriptions Laura Koesten (+Kathleen Gregory) Computer Science, Research Group for VDA web	Metadata, or standardized descriptions of data, are powerful surrogates for data. They impact how data are discovered, how data are understood, and how data are used. Metadata are most often created manually at data repositories, although there is great variation in how this is done. This project will use a large-scale survey (e.g. an online questionnaire) to understand the metadata generation processes at data repositories included in the re3data.org database. Tasks: • Create sample of data repositories to include • Create questionnaire • Recruit respondents • Analysis of questionnaire responses	Remote collaboration possible	FDA (Foundations of Data Analysis) Programming languages: Python or R	1 IR II S-I
Common data or spreadsheet fears Laura Koesten Computer Science, Research Group for VDA web	We are increasingly exposed to data in different aspects of our lives, be that in an ever growing range of professions reliant on data analysis, or in our private lives exposing us to data about us, our activities or using data to inform our decisions. However, many people still do not feel comfortable engaging with a spreadsheet, nor do they have the skills to perform more complex types of data analysis. In this project we aim to conduct a qualitative study to better understand people's preconceptions by observing them interacting with a spreadsheet and discussing their experiences. *Tasks:* • Design a mixed method study • Recruit respondents • Qualitative data analysis	Remote collaboration possible	FDA (Foundations of Data Analysis) Possibly VIS (Data Visualization) Possibly HCI (Human Computer Interaction)	1 IR II S-I

Understanding data conversations to understand data science communities Laura Koesten (+Kathleen Gregory) Computer Science, Research Group for VDA web	The project will build a corpus of conversations around datasets and data science activities from forums of data communities such as Kaggle, data.world, or Reddit. The aim is to carry out content and community analysis, using qualitative or quantitative methods to understand how people talk about data and to learn what that means for data community platform design. Tasks: • Collecting available forum messages of two data plat-forms (e.g. Kaggle) • Getting familiar with the data set • Content and community analysis of the messages and their authors	Remote collaboration possible	FDA (Foundations of Data Analysis) VIS (Data Visualization) Basic qualitative and quantitative data analysis Programming languages: Python or R	1 IR II S-I MA
How do people understand charts? Laura Koesten Computer Science, Research Group for VDA web	Textual descriptions of charts are relevant for a variety of application and research areas. In this project we will create a crowdsourcing study to collect a dataset of charts annotated with a description of their key messages as perceived by the readers of the charts. The data will consist of images (charts) and free text interpretations of the charts. We will analyse the resulting descriptions qualitatively and visualise the results in an interactive manner. *Tasks:* • *Qualitative (content analysis) and quantitative analysis of text and image data* • *Apply basic NLP techniques to cluster and analyse free text data* • *Design a simple user interface to explore the data corpus interactively and present results*	Remote collaboration possible	FDA (Foundations of Data Analysis) VIS (Data Visualization) Programming languages: Python or R, Javascript, HTML	1 S-I MA

| **Maternal vocal communication in the nest in kea parrots**

Wein-Schwing, Amelia, Univ.-Ass. Mag PhD

Comparative Cognition, Messerli Research Institute

web | In a recent study we discovered that kea parrot mothers produce a nest-specific call type, but the function of this call type is not yet known. In this study the student will go through video and audio recordings of kea mothers in the nest to attempt to explain the function of this call type. Please be aware that this project will not involve directly working with the birds. | Remote collaboration possible | Interest and/or pre-experience in animal vocal communication, basic knowledge of bioacoustics, basic stats skills.

Must co-register with the VetMed Uni. | 1

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