Modulkatalog

Computational Linguistics and Language Technology

Programmformat: Major 90

Studienstufe: Master

Erstellt am 28.01.2025

Modulgruppen des Programms

- Scientific Specialization
- Core Modules of Computational Linguistics and Language Technology
- Computer Science
- Computational Linguistics and Language Technology in Practice
- Other Curricular Modules

Der Modulkatalog enthält alle beständigen Angaben zu den Pflicht- und Wahlpflichtmodulen des Programms, die semesterbezogenen Informationen dazu entnehmen Sie dem Vorlesungsverzeichnis.

Ebenfalls im Vorlesungsverzeichnis finden Sie das aktuelle Angebot an Wahlmodulen sowie weiterführende Informationen zu Modulen anderer Fakultäten.

Qualifikationsarbeit

06SM521-MA	Master Thesis (P 30)	7

06M-7521i01 Scientific Specialization

06SM521-s09	[Seminar] (W 6)	8

06M-7521i02 Core Modules of Computational Linguistics and Language Technology

06M-7521i03 Computer Science

Diese Modulgruppe enthält ausschliesslich Wahlmodule. Informieren Sie sich im Vorlesungsverzeichnis über das aktuelle Angebot.

06M-7521i04 Computational Linguistics and Language Technology in Practice

06M-7521w01 Other Curricular Modules

Modultyp: Pflicht

Master Thesis

06SM521-MA

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	30
Angebotsmuster	2-semestrig, jedes Semester
Bewertung/Benotung	1-6, in Halbschritten
Repetierbarkeit	einmal wiederholbar, erneut buchen
Leistungsnachweis	schriftliche Arbeit
Unterrichtssprache	Englisch
Lehrformen	Ma-Arbeit

Lernziel

The students (1) are able to cope with a research question in a scientific concise way (2) are able to deal with the relevant research literature (3) use existing language technology or improve existing methods (4) specify und implement their own problem specific algorithm (5) evaluate their systems according to the standards of our discipline (6) concisely describe their work in their Master's thesis

Allgemeine Beschreibung

The "state of the art" is to be reprocessed in relation to the chosen question and the formal rules of the discipline (e.g. regarding references) must be taken into account. For more information please consult the home page of the Institute of Computational Linguistics.

Voraussetzungen

Erfolgreiche Absolvierung von 30% der geforderten Module.

Modulgruppe: Scientific Specialization
Modultyp: Wahl

[Seminar]

06SM521-s09

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semestrig, einmalig
Bewertung/Benotung	1-6, in Halbschritten
Repetierbarkeit	keine Wiederholungsmöglichkeit
Leistungsnachweis	schriftliche Arbeit und Referat
Unterrichtssprache	
Lehrformen	Seminar

Lernziel

The students (1) gain further insight in a specific area of Natural Language Processing (2) acquire basic methodological skills needed for scientific research (3) get practice in presenting complex topics in a clear manner (4) can write a scientific paper

Allgemeine Beschreibung

A seminar serves the scientific deepening of knowledge in a particular subject area. Students learn the methods of scientific work, e.g. how to deal with research literature, how to interpret facts and theories as well as to properly evaluate empirical results. Moreover, they learn how to prepare and give a talk. Students learn how to discuss and evaluate other talks. Finally, they acquire the skill to elaborate their talk in a written format.

Voraussetzungen

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Advanced Techniques of Machine Translation

06SM521-501

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semestrig, jedes Herbstsemester
Bewertung/Benotung	1-6, in Halbschritten
Repetierbarkeit	einmal wiederholbar, erneut buchen
Leistungsnachweis	Portfolio (75% final exam und 25% exercises)
Unterrichtssprache	Englisch
Lehrformen	Vorlesung mit integrierter Übung

Lernziel

The students (1) will be acquainted with the latest research and developments in Machine Translation (2) will learn how to build Machine Translation systems with state-of-the-art performance (3) will learn how to perform Machine Translation experiments and publish the results

Allgemeine Beschreibung

In this course we present and experience the latest research in Machine Translation. Topics include building and evaluating Machine Translation systems, and integrating the systems into various application scenarios. We take a broad perspective and look at Machine Translation for different language situations (written, spoken, and signed language). And we take a deep perspective by studying the underlying linguistic knowledge sources and statistical techniques in detail.

Voraussetzungen

Basic knowledge in Machine Translation and Machine Learning.

Dieses Modul ist als vorgezogenes Mastermodul geeignet.

Machine Learning for Natural Language Processing 1

06SM521-505

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semestrig, jedes Herbstsemester
Bewertung/Benotung	1-6, in Halbschritten
Repetierbarkeit	einmal wiederholbar, erneut buchen
Leistungsnachweis	Portfolio (75% written exam and 25% proof of academic achievements in self-study)
Unterrichtssprache	Englisch
Lehrformen	Vorlesung, Tutorat

Lernziel

Students know about relevant machine learning techniques for NLP. They understand advanced neural methods for transfer learning and linguistic structure prediction. They gain practical experience in applying machine learning to NLP problems.

Allgemeine Beschreibung

Modern Natural Language Processing (NLP) requires a high level of expertise in neural machine learning techniques. This course first covers the basic supervised and unsupervised methods used in NLP. The second part focuses on transfer learning and prediction of linguistic structures. Participants will gain theoretical and practical experience in this course.

Voraussetzungen

Good programming skills in Python and core knowledge in machine learning, statistics and probability theory.

Dieses Modul ist als vorgezogenes Mastermodul geeignet.

Machine Learning for Natural Language Processing 2

06SM521-506

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semestrig, jedes Frühlingssemester
Bewertung/Benotung	1-6, in Halbschritten
Repetierbarkeit	einmal wiederholbar, erneut buchen
Leistungsnachweis	Portfolio (50% Referat/Diskussionsbeiträge, 50% schriftliche Arbeit)
Unterrichtssprache	Englisch
Lehrformen	Vorlesung, Tutorat

Lernziel

Students know the current state of machine learning methods for various NLP tasks. They know how to conduct machine learning-based empirical research in computational linguistics and how to present it in the scientific format of a workshop paper.

Allgemeine Beschreibung

This course focuses on current neural machine learning (ML) methods that achieve state-of-the-art performance in Natural Language Processing (NLP) tasks. Participants study and present current research articles from the NLP literature. As a practical preparation for a modern empirical master thesis, they learn how to plan, conduct and evaluate ML-based NLP experiments and how to describe their approach and results in a scientific paper.

Voraussetzungen

Successfully completed module «Machine Learning for Natural Language Processing I».

Dieses Modul ist als vorgezogenes Mastermodul geeignet.

Intensivwoche

06SM521-514

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semestrig, jedes Frühlingssemester
Bewertung/Benotung	bestanden/nicht bestanden
Repetierbarkeit	einmal wiederholbar, erneut buchen
Leistungsnachweis	Portfolio (50% successful participation in the workshop week and 50% proof of self-study achievements)
Unterrichtssprache	English and/or languages of the host country
Lehrformen	Exkursion

Lernziel

Students can actively participate in the scientific community. They learn to hold a presentation in front of an international audience and have the possibility to get insights into company affairs. The workshop week encourages international networking and strengthens the students team spirit.

Allgemeine Beschreibung

Workshop week with international exchange, usually in the form of excursion abroad. Depending on the possibilities, the following elements are part of the program: - Visiting universities and research centers - Exchange with students, doctoral students and lecturers - Presentation of own projects - Company visits - Participation in a conference or summer school. The workshop week usually takes place at the end of the spring semester.

Voraussetzungen

none

Fundamentals of speech sciences and signal processing

06SM521-519

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semestrig, jedes Frühlingssemester
Bewertung/Benotung	1-6, in Halbschritten
Repetierbarkeit	einmal wiederholbar, erneut buchen
Leistungsnachweis	Portfolio: (a) weekly assignments, 40% (b) end of term exam, 60%
Unterrichtssprache	Englisch
Lehrformen	Vorlesung

Lernziel

(1) Fundamental skills in speech signal processing (2) Understanding of speech acoustics like signal types, signal transformations, acoustic systems, signal and sytem theory (3) Application of the signal processing techniques in research and industrial products.

Allgemeine Beschreibung

Experience the captivating world of speech signal processing. Discover the essential techniques that enable us to decode, manipulate, and reproduce the human communication with speech. Learn about signal and system theory necessary for speech processing in both human interaction and cutting-edge technological applications. This lecture series will equip you with the fundamental knowledge needed to unravel the intricacies of speech communication and embrace the possibilities it holds.

Voraussetzungen

An interest in speech signal processing is with computers required.

Dieses Modul ist als vorgezogenes Mastermodul geeignet.

Instrumental techniques of phonetic research

06SM521-520

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semestrig, jedes Frühlingssemester
Bewertung/Benotung	bestanden/nicht bestanden
Repetierbarkeit	einmal wiederholbar, erneut buchen
Leistungsnachweis	During the semester students run guided analyses on spoken material both as part of the course but also as personal homework. In addition students are recquired to hand in a small-scale empiric study (7-10 pages) to be handed in a fortnight after the last meeting of the semester. Both their analyses during the semester and their final report form their portfolio and thus the basis for the evaluation of their performance.
Unterrichtssprache	Englisch
Lehrformen	Übung

Lernziel

Students know how to make high-quality audio recordings for phonetic research purposes. They can annotate sound files, make reliable measurements in them (formants, pitch, intensity, etc.) and produce meaningful visualizations (wave forms, spectra, spectrograms, etc.) with suitable software. They also understand how to read spectrograms so as to draw informed conclusions about the temporal and spectral characteristics of speech events. Moreover, students understand the most important key notions and concepts in automatizing measurements and in making them replicable (scripting).

Allgemeine Beschreibung

Since speech is a transient event, phoneticians regularly resort to the aid of technical devices in order to record, describe and analyse the production, the acoustics and the perception of speech sounds. Hence, in this module we look at the technical side of phonetic research and the students acquire and develop skills and techniques necessary for the successful deployment of such devices, ranging from sound recording equipment (especially recorders and microphones) to more specialized phonetic equipment (such as the laryngograph) to software solutions geared specifically towards the need of phoneticians (such as Praat or the R-package ‘vowels’).

Voraussetzungen

Students are required to have attended an introductory module in phonetics at bachelor or master level.

Dieses Modul ist als vorgezogenes Mastermodul geeignet.

Eye tracking: Experiment design and machine learning methods

06SM521-530

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semestrig, jedes Frühlingssemester
Bewertung/Benotung	1-6, in Halbschritten
Repetierbarkeit	einmal wiederholbar, erneut buchen
Leistungsnachweis	Portfolio
Unterrichtssprache	Englisch
Lehrformen	Übung

Lernziel

Students will learn how to develop an experiment design for a given research question. Students will further learn how to implement and conduct an eye tracking experiment, choose and implement adequate preprocessing algorithms and implement state-of-the art statistical and machine learning methods for the analysis of eye tracking data.

Allgemeine Beschreibung

In this course, we will study eye tracking methodology for (psycho-)linguistic basic research as well as technological applications including cognitively enhanced/interpretable NLP. The course covers an introduction to eye tracking hardware, the design and implementation of experiments and the preprocessing of the data. The main focus will be the analysis and implementation of state-of-the-art machine learning methods for the analysis of eye tracking data.

Voraussetzungen

Python programming skills at least on the level of the Module «Programmiertechniken in der Computerlinguistik 1».

Modulgruppe: Core Modules of Computational Linguistics and Language Technology
Modultyp: Wahlpflicht

Artificial Intelligence for Language Accessibility

06SM521-532

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semestrig, jedes Herbstsemester
Bewertung/Benotung	1-6, in Halbschritten
Repetierbarkeit	einmal wiederholbar, erneut buchen
Leistungsnachweis	Written exam
Unterrichtssprache	Englisch
Lehrformen	Vorlesung mit integrierter Übung

Lernziel

Students (1) are aware of different target groups in the context of accessibility; (2) are aware of language barriers that these target groups face; (2) know about research approaches from the area of artificial intelligence towards reducing some of these barriers; (3) know how to apply a selection of these approaches.

Allgemeine Beschreibung

Blind and visually impaired, deaf and hearing-impaired, cognitively, motor-impaired, and persons with speech and language disorders face many barriers in their everyday lives, often related to language. This course provides an overview of common barriers and introduces artificial intelligence approaches developed to reduce some of these barriers. Specifically, the course deals with tasks such as sign language recognition, translation, and production; intralingual subtitling; audio description; diagnostics of speech and language disorders; automatic text simplification; and speech recognition and synthesis as part of Augmentative and Alternative Communication (AAC) and Ambient Assisted Living (AAL). A focus is on research approaches; transversal topics are those of multimodality and ethics. Students will gain hands-on practice applying some of the approaches as part of the exercises accompanying the course.
This course is preceded by a "Digital Accessibility" course.

Voraussetzungen

Knowledge to the extent of the courses "Einführung in die Computerlinguistik 1", "Programmiertechniken der Computerlinguistik 1", "Programmiertechniken der Computerlinguistik 2", and "Digital Accessibility"

Dieses Modul ist als vorgezogenes Mastermodul geeignet.

Modulgruppe: Core Modules of Computational Linguistics and Language Technology
Modultyp: Wahlpflicht

Advanced Machine Learning

06SM521-533

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semestrig, jedes Frühlingssemester
Bewertung/Benotung	1-6, in Halbschritten
Repetierbarkeit	einmal wiederholbar, erneut buchen
Leistungsnachweis	Portfolio (20% Theoretical and practical assignments, 80% Written exam)
Unterrichtssprache	Englisch
Lehrformen	Vorlesung mit integrierter Übung, Tutorat

Lernziel

Students will acquire theoretical knowledge of state-of-the-art machine learning techniques and the practical skills to apply these methods to different kinds of problem settings.

Allgemeine Beschreibung

First, this course covers an in-depth discussion of state-of-the-art methods in supervised and unsupervised machine learning including (Retrieval) Transformers, Graphical Neural Networks and Diffusion Models as well approaches to combine elements from these architectures. We will further discuss how transfer learning (including zero- and N-shot learning) can be applied in different types of problem settings.

Second, this course provides an introduction to Reinforcement Learning that introduces the reinforcement problem setting as Markov Decision Process and covers Dynamic Programming approaches, Monte Carlo methods, Temporal Difference Learning and approximate solution methods.

Voraussetzungen

Solid knowledge of supervised and unsupervised machine learning, probability theory, linear algebra, multivariate calculus as well as fluent Python programming skills are required.

Dieses Modul ist als vorgezogenes Mastermodul geeignet.

Introduction to Forensic Speech Sciences

06SM521-534

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semestrig, jedes Herbstsemester
Bewertung/Benotung	bestanden/nicht bestanden
Repetierbarkeit	einmal wiederholbar, erneut buchen
Leistungsnachweis	Portfolio: 50% assignments, 50% final course exam
Unterrichtssprache	Englisch
Lehrformen	Vorlesung mit integrierter Übung

Lernziel

By the end of this module, students will have achieved the following learning objectives:
- A fundamental understanding of factors affecting the perception, analysis, and transcription of speech signals within investigative settings.
- Develop familiarity with diverse methods for transcribing forensic audio materials, including using state-of-the-art automatic speech recognition systems.
- Gain familiarity with multiple approaches to forensic voice comparison, including auditory assessment, acoustic-phonetic analysis, and automatic techniques.
- Showcase their abilities through practical demonstrations in voice comparison and the transcription of forensic recordings

Allgemeine Beschreibung

Forensic Speech Science is a multidisciplinary field that applies various aspects of phonetics, linguistics, signal processing, and automatic speaker recognition for legal and investigative purposes. This module aims to introduce the goals, tasks (e.g. transcription, speaker comparison, disambiguation of disputed utterances) and practices of forensic speech and audio analysis. This module blends frontal teaching and hands-on sessions.

Voraussetzungen

The participation to modules on Phonetics and Phonology is highly recommended.

Dieses Modul ist als vorgezogenes Mastermodul geeignet.

[Summer School]

06SM521-s06

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semestrig, einmalig
Bewertung/Benotung	bestanden/nicht bestanden
Repetierbarkeit	keine Wiederholungsmöglichkeit
Leistungsnachweis	Nachweis von im Selbststudium erbrachten Studienleistungen
Unterrichtssprache	
Lehrformen	Selbststudium

Lernziel

Learning objectives are (1) repeat and consolidate what you have learned (2) acquire new content / topic areas in a compact form (3) get to know the latest trends (4) exchange of experiences with students from other universities (5) networking at international level

Allgemeine Beschreibung

Summer schools are designed to give students an in-depth insight into specific subject areas. This way, they consolidate what they have learned so far during their studies, expand their knowledge of core theories and understand new approaches in a compact way. They become aware of current trends, they exchange experiences and assessments with students from other universities, and thus get the opportunity to get to know the international level and at the same time establish relationships that can be helpful beyond their studies. This module can be booked to credit the attendance at summer schools that are related to Natural Language Processing. This module can be booked with 3 or 6 ECTS points. The amount of points will be decided in consultation with the module coordinator.

Voraussetzungen

This module can not be booked by the students themselves, the booking has to be authorized by the module coordinator. In order to credit the attendance at a summer school, it is essential to submit a request to the module coordinator before the start of the summer school.

Practical Training In-House

06SM521-510

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semestrig, jedes Semester
Bewertung/Benotung	bestanden/nicht bestanden
Repetierbarkeit	einmal wiederholbar, erneut buchen
Leistungsnachweis	dokumentierte praktische Arbeit
Unterrichtssprache	Deutsch und/oder Englisch
Lehrformen	Praktikum

Lernziel

The students (1) get in touch with research (2) read scientific literature (3) are involved in evaluation processes (4) take over particular tasks in the context of a project (5) are involved in the preparation of articles (6) get insights into practical work (7) deepen their knowledge and skills with respect to a particular topic

Allgemeine Beschreibung

In this module, the students get in touch with scientific project work, that is, they learn how to do basic research. In order to accomplish these kind of skills, they read scientific literature, prepare and annotate data, apply statistical and machine learning methods to solve particular problems. They are also involved in the preparation of articles for workshops and conferences. The students work on a particular (partial) problem in a scientific context or even running project. This module can be booked to credit work done in a scientific project at the UZH. This module can be booked with 6 or 9 ECTS points. The amount of points will be decided in consultation with the module coordinator.

Voraussetzungen

This module cannot be booked by the students themselves, the booking has to be authorized by the module coordinator. There is no entitlement to this module, the module will only be offered if a suitable position is available in a project. The requirements will be defined according to the topic.

Practical Training Off-Site

06SM521-511

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semestrig, jedes Semester
Bewertung/Benotung	bestanden/nicht bestanden
Repetierbarkeit	einmal wiederholbar, erneut buchen
Leistungsnachweis	dokumentierte praktische Arbeit
Unterrichtssprache	Deutsch und/oder Englisch
Lehrformen	Praktikum

Lernziel

The students (1) get in touch with language technology companies (2) learn to connect theory and practical work (3) get to know the structures and processes of companies (4) apply what they have learned (5) broaden their knowledge of practical issues

Allgemeine Beschreibung

The students gain experience in the application of computational linguistics. They get in touch with the structures and procedures of companies and are involved in the realization of software in order to solve particular problems of these companies. The students apply what they have learned and adapt it to the needs of a specific commercial sector. Practical Trainings Off-Site are usually stays at companies or public organizations that are involved with Natural Language Processing. The training has to have a relation to Natural Language Processing and they have to be organized autonomously. This module can be booked with 3 or 6 ECTS points. The amount of points will be decided in consultation with the module coordinator.

Voraussetzungen

This module cannot be booked by the students themselves, the booking has to be authorized by the module coordinator. A prior application must be approved by the module coordinator in order for the Practical Training Off-Site to be credited.

Programming Project 1

06SM521-512

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semestrig, jedes Semester
Bewertung/Benotung	bestanden/nicht bestanden
Repetierbarkeit	einmal wiederholbar, erneut buchen
Leistungsnachweis	dokumentierte praktische Arbeit
Unterrichtssprache	Deutsch und/oder Englisch
Lehrformen	Sonstiges

Lernziel

The students (1) autonomously design a project (2) realize the project plan (3) use existing tools (4) do software engineering (5) document their work according to standards (6) evaluate the results (7) use software repositories

Allgemeine Beschreibung

Programming projects aim at the consolidation of programming skills and the acquisition of software engineering skills. Starting with a particular research question and relevant literature, they work on a solution, define milestones, acquire and/or annotate data, implement a program and evaluate it using appropriate data. This module can be booked to credit work done in a first programming project. This module can be booked with 3, 6 or 9 ECTS points. The amount of points will be decided in consultation with the module coordinator.

Voraussetzungen

In the duration of a study level a maximum of two programming projects can be booked. This module can be booked to credit work done in a programming project. It cannot be booked by the students themselves, the booking has to be authorized by the module coordinator. Before a programming project is started, it is essential to get the permission of the module coordinator (per Email). The prerequisites will be set according to the topic.

Student Teaching Assistant 1

06SM521-513

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semestrig, jedes Semester
Bewertung/Benotung	bestanden/nicht bestanden
Repetierbarkeit	einmal wiederholbar, erneut buchen
Leistungsnachweis	dokumentierte praktische Arbeit
Unterrichtssprache	Deutsch und/oder Englisch
Lehrformen	Sonstiges

Lernziel

The students (1) cope with computational linguistics content from a teaching perspective (2) learn to prepare computational linguistics content in a way tailored to a student's audience (3) learn to correct exercises and give appropriate feedback

Allgemeine Beschreibung

A student teaching assistance serves the acquisition of basic teaching skills. This requires a deeper insight of the contents of the associated lecture and the ability to prepare teaching material in order to help the students to better understand it. The task also involves the preparation and correction of exercises. This module can be booked to credit the conducting of exercises/tutorials. This module can be booked with 3 or 6 ECTS points. The amount of points will be decided in consultation with the module coordinator.

Voraussetzungen

In the duration of a study level a maximum of two modules «Student Teaching Assistant» can be booked, whereby the two modules must differ in content (also to any previously completed student teaching assistant modules). This module is booked in order to receive credit for a first job as a student teaching assistant at master's level.
This module is an application module, the application has to be authorized by the module coordinator (per Email). The lecturers have to be included in the communication. The open positions for student teaching assistants are usually posted on the mailing list of the Institute of Computational Linguistics (cllist@ lists.ifi.uzh.ch) a few weeks before the semester starts. Students interested in conducting exercises/tutorials of a specific course can apply anytime for the position directly with the lecturer and the module coordinator. The module in question must have been passed successfully beforehand.

Student Teaching Assistant 2

06SM521-516

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semestrig, jedes Semester
Bewertung/Benotung	bestanden/nicht bestanden
Repetierbarkeit	einmal wiederholbar, erneut buchen
Leistungsnachweis	dokumentierte praktische Arbeit
Unterrichtssprache	Deutsch und/oder Englisch
Lehrformen	Sonstiges

Lernziel

The students (1) cope with computational linguistics content from a teaching perspective (2) learn to prepare computational linguistics content in a way tailored to a student's audience (3) learn to correct exercises and give appropriate feedback

Allgemeine Beschreibung

A student teaching assistance serves the acquisition of basic teaching skills. This requires a deeper insight of the contents of the associated lecture and the ability to prepare teaching material in order to help the students to better understand it. The task also involves the preparation and correction of exercises. This module can be booked to credit the conducting of exercises/tutorials. This module can be booked with 3 or 6 ECTS points. The amount of points will be decided in consultation with the module coordinator.

Voraussetzungen

In the duration of a study level a maximum of two modules «Student Teaching Assistant» can be booked, whereby the two modules must differ in content (also to any previously completed student teaching assistant modules). This module is booked in order to receive credit for a second job as a student teaching assistant at master's level.
This module is an application module, the application has to be authorized by the module coordinator (per Email). The lecturers have to be included in the communication. The open positions for student teaching assistants are usually posted on the mailing list of the Institute of Computational Linguistics (cllist@ lists.ifi.uzh.ch) a few weeks before the semester starts. Students interested in conducting exercises/tutorials of a specific course can apply anytime for the position directly with the lecturer and the module coordinator. The module in question must have been passed successfully beforehand.

Programming Project 2

06SM521-517

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semestrig, jedes Semester
Bewertung/Benotung	bestanden/nicht bestanden
Repetierbarkeit	einmal wiederholbar, erneut buchen
Leistungsnachweis	dokumentierte praktische Arbeit
Unterrichtssprache	Deutsch und/oder Englisch
Lehrformen	Sonstiges

Lernziel

The students (1) autonomously design a project (2) realize the project plan (3) use existing tools (4) do software engineering (5) document their work according to standards (6) evaluate the results (7) use software repositories

Allgemeine Beschreibung

Programming projects aim at the consolidation of programming skills and the acquisition of software engineering skills. Starting with a particular research question and relevant literature, they work on a solution, define milestones, acquire and/or annotate data, implement a program and evaluate it using appropriate data. This module can be booked with 3, 6 or 9 ECTS points. The amount of points will be decided in consultation with the module coordinator.

Voraussetzungen

In the duration of a study level a maximum of two programming projects can be booked. This module can be booked to credit work done in a second programming project. It cannot be booked by the students themselves, the booking has to be authorized by the module coordinator. Before a programming project is started, it is essential to get the permission of the module coordinator (per Email). The prerequisites will be set according to the topic.

Modulgruppe: Other Curricular Modules
Modultyp: Wahlpflicht

Speech perception and the brain

06SM521-524

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semestrig, jedes 2. Herbstsemester
Bewertung/Benotung	1-6, in Halbschritten
Repetierbarkeit	einmal wiederholbar, erneut buchen
Leistungsnachweis	Portfolio: (a) written assignments throughout term (50%), (b) written exam (50%).
Unterrichtssprache	Englisch
Lehrformen	Vorlesung

Lernziel

The objectives of this lecture series are to (1) understand the fundamental complexity of speech perception (2) understand a variety of different theories explaining speech perception (3) understand about a variety of different physical cues that contribute to the perception of speech

Allgemeine Beschreibung

Human listeners can retrieve abstract linguistic messages from speech signals despite of the fact that there is strong variability in acoustic realizations of speech between individuals or between situations. Acquiring a language, listeners have to learn about how sounds group to syllables and syllables group to words and they can perform such decisions on speech despite of highly ambiguous cues to sounds, syllables or words. For this reason different theories of speech perception propose various solutions as to how speech can be perceived apparently effortlessly given its highly variable nature.

Voraussetzungen

The participation in "Fundamentals of Speech Sciences and Signal Processing" is highly recommended.

Experiments with speech

06SM521-526

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semestrig, jedes Frühlingssemester
Bewertung/Benotung	1-6, in Halbschritten
Repetierbarkeit	einmal wiederholbar, erneut buchen
Leistungsnachweis	Portfolio: (a) written assignments throughout term (20%), (b) oral presentation in class (20%), (c) written report (60%).
Unterrichtssprache	Englisch
Lehrformen	Seminar

Lernziel

The course has the objectives to learn how to (a) design and execute experiments in speech; (b) formulate testable experimental hypotheses based on theoretical knowledge; (c) process and manipulate speech for experiments; (d) analyse quantitative data obtained from experiments; (e) interpret results; (f) compare and discuss the results with related research; (g) write up findings in a stat-of-the-art experimental report.

Allgemeine Beschreibung

The media often reports that speech played backwards contains secret messages. Is that true? What does it sound like? Scientists showed that babies can extract information from the speech signal without even knowing anything about the linguistic system. In backward speech, such abilities may be lost. Other research showed that non-native speakers can be identified in speech even when it is played backwards. Why playing speech backwards? How is this done? In this seminar we will learn how to study speech communication using experimental techniques. Students will run their own experiments in which they will address a variety of questions, for example how we segment a continuous speech stream into words or syllables, how we identify different languages or different speakers or how we communicate in strong background noise. There are many fascinating things to discover about speech communication but most likely not that speech played backwards contains secret messages.

Voraussetzungen

The participation in «Fundamentals of Speech Sciences and Signal Processing» is highly recommended.

Modulgruppe: Other Curricular Modules
Modultyp: Wahlpflicht

Voice analysis

06SM521-527

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semestrig, jedes Herbstsemester
Bewertung/Benotung	1-6, in Halbschritten
Repetierbarkeit	einmal wiederholbar, erneut buchen
Leistungsnachweis	Portfolio: (a) written assignments throughout term (20%), (b) oral presentation in class (20%), (c) written report (60%).
Unterrichtssprache	Englisch
Lehrformen	Seminar

Lernziel

This cross-disciplinary seminar aims to achieve the following objectives: (a) Understanding the information encoded in the human voice. (b) Exploring how multiple types of information can be encoded simultaneously in voice. (c) Investigating the interaction between different types of information within the voice. (d) Examining the various social functions served by the voice. (e) Applying the knowledge of voice information in practical fields such as forensic voice analysis and clinical voice diagnostics.

Allgemeine Beschreibung

The human voice is probably the most complex communication instrument that humans possess. Next to a linguistic messages, voices signal the emotional and health state, and are a key part of our personality. Non-speech information in voice actually enhances speech communication and not seldomly overrides the linguistic message of the speech signal. People with voice disorders often experience audible dysphonia. Thus, the human voice sound contains measurable information about vocal fold function and status. These acoustic characteristics are essential to estimate the impact of a voice disorder on daily life and to measure treatment effects in clinical voice diagnostics.Through a comprehensive exploration of these topics, participants will gain a clear understanding of the complexities and nuances of vocal communication. This seminar will provide valuable insights and practical applications that can be utilized in diverse fields, making it an essential opportunity for those seeking to deepen their understanding of voice-related phenomena.

Voraussetzungen

The participation in "Fundamentals of Speech Sciences and Signal Processing" is highly recommended.

Modulgruppe: Other Curricular Modules
Modultyp: Wahlpflicht

Our voice: Between linguistic and idiosyncratic information

06SM521-531

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semestrig, jedes 2. Herbstsemester
Bewertung/Benotung	1-6, in Halbschritten
Repetierbarkeit	einmal wiederholbar, erneut buchen
Leistungsnachweis	Portfolio: (a) weekly assignments 40% (b) end of term exam 60%
Unterrichtssprache	Englisch
Lehrformen	Vorlesung

Lernziel

(1) Theoretical understanding of the role of voice in speech communication (2) Acquisition of articulatory procedures for measuring voice production (3) Signal procesisng skills for the acoustic analysis of voices

Allgemeine Beschreibung

Next to containing a linguistic message, voices play an essential role in human social interaction. Humans can recognize other individuals by their voice , rely on being recognized and recognition failure is a social misconduct that can lead to high embarrassment. Voices signal the emotional state, the fertility in females and help selecting the right mating partner. Voices are a key part of our personality and shape the trust we have in others. In this lecture series we will study the complexity of the human voice by applying a variety of technologies such as laryngography, electromagnetic articulography, ultrasound, endoscopy and myography.

Voraussetzungen

- Lecture: Fundamentals of Speech Sciences and Signal Processing - Seminar: Experiments with Speech