



Modulkatalog

Computational Linguistics and Language Technology

Programmformat: Major 90

Studienstufe: Master

Gültig ab: Herbstsemester 2019

[Erstellt am 22.01.2024]

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)

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06M-7521i01 Scientific Specialization

06SM521-s09 [Seminar] (W 6)

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06M-7521i03 Computer Science

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



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Master Thesis

06SM521-MA

Anbietende Organisationseinheit PhF: Institut für Computerlinguistik

ECTS Credits 30

Angebotsmuster 2-semesterig, 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.



[Seminar]

06SM521-s09

Anbietende Organisationseinheit PhF: Institut für Computerlinguistik

ECTS Credits 6

Angebotsmuster 1-semesterig, 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-semesterig, jedes Herbstsemester

Bewertung/Benotung 1-6, in Halbschritten

Repetierbarkeit einmal wiederholbar, erneut buchen

Leistungsnachweis Portfolio (75% Schriftliche Prüfung und 25% Nachweis von im Selbststudium erbrachten Studienleistungen)

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-semesterig, jedes Herbstsemester

Bewertung/Benotung

1-6, in Halbschritten

Repetierbarkeit

einmal wiederholbar, erneut buchen

Leistungsnachweis

Portfolio (75% schriftliche Prüfung und 25% Nachweis von im Selbststudium erbrachten Studienleistungen)

Unterrichtssprache

Englisch

Lehrformen

Vorlesung, Tutorat

Lernziel

The students (1) know about relevant machine learning techniques in NLP (2) understand advanced concepts for semisupervised learning and linguistic structure prediction (3) gain practical experience in applying machine learning to NLP problems

Allgemeine Beschreibung

Modern Natural Language Processing (NLP) requires a lot of expertise in machine learning techniques. This course first introduces the basic supervised and unsupervised methods used in NLP: regression, classification, sequence labeling, clustering, topic modeling, dimension reduction. The second part has a focus on linguistic structure prediction and semisupervised approaches. The participants gain theoretical and practical experience in this course.

Voraussetzungen

Programming skills in Python and basic knowledge in 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-semesterig, jedes Frühlingsemester

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.



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

Intensivwoche

06SM521-514

Anbietende Organisationseinheit PhF: Institut für Computerlinguistik

ECTS Credits 6

Angebotsmuster 1-semesterig, 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-semesterig, jedes Frühlingsemester

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 system 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-semesterig, jedes Frühlingsemester

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 required 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.



Phonetic Transcription

06SM521-521

Anbietende Organisationseinheit	PhF: Institut für Computerlinguistik
ECTS Credits	6
Angebotsmuster	1-semesterig, jedes Herbstsemester
Bewertung/Benotung	bestanden/nicht bestanden
Repetierbarkeit	einmal wiederholbar, erneut buchen
Leistungsnachweis	Portfolio (Students upload solutions of different exercises of phonetic transcription to the platform OLAT).
Unterrichtssprache	Englisch
Lehrformen	Übung

Lernziel

Students are familiar with the different alphabets used for phonetic transcription (ranging from Boehmer-Ascoli to X-SAMPA), gaining a thorough knowledge of the International Phonetic Alphabet (IPA). They are aware of the theoretical and methodological aspects involved in phonetic transcription and are able to use the necessary practical tools (e.g., fonts, computer software, etc.) in an adequate manner.

Allgemeine Beschreibung

This tutorial offers a historical overview of phonetic transcription from the foundations in the nineteenth century (i.e. the creation of the dialectological transcription systems and the introduction of the IPA in 1886) to the novel tools used in the field of speech technology (e.g. the X-SAMPA-Alphabet). The practical exercises focus on different types of transcription (broad/narrow, phonemic/phonetic, systematic/impressionistic), on the basis of both written texts and audio recordings and illustrating better and lesser known languages. The technical tools consist in particular of phonetic fonts (including shortcuts and the "IPA-Palette") and the use of acoustic software for manual and automatic segmentation/annotation of audio recordings. An outlook on some non-phonetic procedures of annotating spoken language (e.g. in the field of conversation analysis or working with video recordings) will round off the tutorial.

Voraussetzungen

The participation in "The Sounds of the World's Languages" is highly recommended.

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-semesterig, jedes Frühlingsemester

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».



Artificial Intelligence for Language Accessibility

06SM521-532

Anbietende Organisationseinheit PhF: Institut für Computerlinguistik

ECTS Credits 6

Angebotsmuster 1-semesterig, 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.



Advanced Machine Learning

06SM521-533

Anbietende Organisationseinheit PhF: Institut für Computerlinguistik

ECTS Credits 6

Angebotsmuster 1-semesterig, jedes Frühlingsemester

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.



[Summer School]

06SM521-s06

Anbietende Organisationseinheit PhF: Institut für Computerlinguistik

ECTS Credits 6

Angebotsmuster 1-semesterig, 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-semesterig, 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-semesterig, 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-semesterig, 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-semesterig, 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 (clist@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-semesterig, 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 (clist@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-semesterig, 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.



Phonology

06SM521-523

Anbietende Organisationseinheit PhF: Institut für Computerlinguistik

ECTS Credits 6

Angebotsmuster 1-semesterig, jedes Herbstsemester

Bewertung/Benotung 1-6, in Halbschritten

Repetierbarkeit einmal wiederholbar, erneut buchen

Leistungsnachweis written exam

Unterrichtssprache Englisch

Lehrformen Vorlesung

Lernziel

Students are familiar with the basic concepts of phonological analysis and are able to apply them to both known and unknown languages. They are aware of the most important phonological theories of the 20th and 21st century.

Allgemeine Beschreibung

This course offers an introduction to the various domains of phonological investigation and presents selected topics of phonological analysis. It introduces the basic concepts of segmental phonology (phoneme, allophone, neutralization, distinctive features, phonological rules and processes), phonotactics (in particular syllable structure), and prosody (quantity, stress, tone, intonation). Phonological phenomena of a variety of languages are illustrated. The course mostly focuses on language structures, providing at the same time a historical overview of phonological theories.

Voraussetzungen

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Speech perception and the brain

06SM521-524

Anbietende Organisationseinheit PhF: Institut für Computerlinguistik

ECTS Credits 6

Angebotsmuster 1-semesterig, 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.



The sounds of the world's languages

06SM521-525

Anbietende Organisationseinheit PhF: Institut für Computerlinguistik

ECTS Credits 6

Angebotsmuster 1-semesterig, jedes Frühlingssemester

Bewertung/Benotung 1-6, in Halbschritten

Repetierbarkeit einmal wiederholbar, erneut buchen

Leistungsnachweis written exam

Unterrichtssprache Englisch

Lehrformen Vorlesung

Lernziel

Students are familiar with the great variety of vowels and consonants present in the world's languages and understand the articulatory mechanisms involved in the production of speech sounds. They know the corresponding symbols of the International Phonetic Alphabet as well as the acoustic characteristics of different vowel and consonant types. Students gain knowledge about the areal distribution of speech sounds among the languages of the world, the structure of phoneme inventories, and the basic concepts and methods of phonological typology.

Allgemeine Beschreibung

The languages of the world display a considerable variety of vowels and consonants, though not all of them are equally frequent. This course first offers a systematic description of speech sound based on the charts of the International Phonetic Alphabet (IPA). Speech sounds of different classes are presented according to major classes (vowels, obstruents, sonorants, non-pulmonic consonants); the relevant articulatory processes are illustrated in terms of their acoustic realisations (e.g. by spectrographic analyses). The second part of the course provides an introduction to theoretical and methodological issues of phonological typology from the beginnings of European structuralism to the phonological databases of today. Also, we will discuss the question as to which extent universal principles may be detected in a variety of phonological systems.

Voraussetzungen

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Experiments with speech

06SM521-526

Anbietende Organisationseinheit PhF: Institut für Computerlinguistik

ECTS Credits 6

Angebotsmuster 1-semesterig, 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 state-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.



Voice analysis

06SM521-527

Anbietende Organisationseinheit PhF: Institut für Computerlinguistik

ECTS Credits 6

Angebotsmuster 1-semesterig, jedes Herbstsemester

Bewertung/Benotung 1-6, in Halbschritten

Repetierbarkeit einmal wiederholbar, erneut buchen

Leistungsnachweis Portfolio: (a) written assignments throughout the term (50%), (b) written report (50%).

Unterrichtssprache Englisch

Lehrformen Seminar

Lernziel

The objectives of this seminar are to understand (1) which information is encoded in the human voice (2) how multiple information can be encoded in voice simultaneously (3) how different types of information interact with each other (4) the different social functions of voice (5) how the knowledge about information in voice can be applied, for example in fields such as forensic voice analysis

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. Non-speech information in voice has traditionally be viewed as noise in the speech signal that needs to be cancelled out. Recent research, however, shows that non-speech information in voice actually enhances speech communication.

Voraussetzungen

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



Our voice: Between linguistic and idiosyncratic information

06SM521-531

Anbietende Organisationseinheit PhF: Institut für Computerlinguistik

ECTS Credits 6

Angebotsmuster 1-semesterig, jedes 2. Herbstsemester

Bewertung/Benotung 1-6, in Halbschritten

Repetierbarkeit einmal wiederholbar, erneut buchen

Leistungsnachweis Portfolio: (a) weekly assignments (b) end of term exam

Unterrichtssprache Englisch

Lehrformen Vorlesung

Lernziel

- Theoretical understanding of the role of voice in speech communication -Acquisition of articulatory procedures for measuring voice production - Signal processing 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 (Dellwo et al., 2007), rely on being recognized (Locke, 2006) and recognition failure is a social misconduct that can lead to high embarrassment (Van Lancker & Canter, 1982). Voices signal the emotional state (Scherer, 1986; Frühholz, Trost, & Kotz, 2016), the fertility in females (Raj et al. 2010; Fischer et al. 2011) and help selecting the right mating partner (Collins, 2001). Voices are a key part of our personality (McAlear et al., 2014) and shape the trust we have in others (Belin et al. 2017). 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
