COMPUTATIONAL LINGUISTICS MASTER'S PROGRAM

The Department of Linguistics at Stony Brook University offers a 3-semester MA in Computational Linguistics.

Computational linguistics studies language as a collection of computational problems. There are two sides to this:

Applications: Getting computers to solve language-related tasks
This includes voice recognition, machine translation, chatbots, automatic text generation and summarization, web search, ad placement, stylistic analysis, and much more.

Science: Computational analysis of language
Humans routinely solve complex problems involving natural language every day when they talk and listen to others. Computational analysis of the unconscious knowledge humans effortlessly use to process natural language has led to the discovery of laws underlying cognition. The science of language also informs the development of new computational techniques for solving language-related problems.

Both sides of computational linguistics have seen an enormous boom in recent years. Computational linguists are highly sought after in industry, and more and more positions in academia require a strong computational background. Our MA program in Computational Linguistics is designed to prepare students from a wide range of backgrounds for future careers in this booming field, be it as natural language engineers, data analysts, or as the first step towards a PhD in Computational Linguistics.

Overview of the Program

Our 3-semester program is designed to get students with little background in linguistics and programming to a level where they are ready to take on an internship after two semesters and enter the job market at the end of the third semester. As one of our graduates, you will have acquired core competencies in programming, algorithms and data structures, advanced mathematics (algebra, logic, statistics), theories of grammar (phonology, syntax, semantics) and the computational analysis of natural language (automata theory, complexity theory). You will also have practical experience with existing software solutions and toolkits that are widely used in the industry. This diverse, interdisciplinary skill set will allow you to take on a variety of positions in the IT sector.

PROGRAM FACULTY

Michael Becker

Linguistics

Computational phonology, machine learning, and statistical inference

Thomas Graf

Linguistics

Computational morphology and syntax, formal language theory

Jeffrey Heinz

Linguistics & Institute for Advanced Computational Science

Computational phonology, formal language theory, and computational learning theory

Jiwon Yun

Linguistics

Computational syntax and semantics, speech analysis, corpus methods

CONTACT

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COURSE OFFERINGS

The MA program takes 36 credits to complete (12 credits per semester), which divide into five broad categories:

CORE COURSES (12 CREDITS)
Computational Linguistics 1 (LIN 537)
Computational Linguistics 2 (LIN 637)
Phonetics (LIN 522) or Phonology I (LIN 523)
Syntax I (LIN 521)

FORMAL METHODS REQUIREMENT (3 CREDITS)
One (1) of the following:
Mathematical Methods in Linguistics (LIN 539)
Statistics (LIN 538)

LINGUISTICS REQUIREMENT (3 CREDITS)
One (1) of the following (course must not have been taken as part of the core curriculum):
Morphology and Word Formation (LIN 624)
Phonetics (LIN 522)
Phonology I (LIN 523)
Phonology II (LIN 623)
Semantics (LIN 625)
Syntax II (LIN 621)

ELECTIVES (12 CREDITS)
Four (4) courses, freely chosen from any of the following lists:
Computer Science Electives
Artificial Intelligence (CSE 537)
Introduction to NLP (CSE 628)
Machine Learning (CSE 512)
Speech Processing (CSE 542)
Computational Linguistics Electives
Computational Phonology (LIN 626)
Computational Semantics (LIN 627)
Computational Syntax (LIN 628)
Learnability (LIN 629)
Mathematical Methods in Linguistics (LIN 539)
Parsing and Processing (LIN 630)
Statistics (LIN 538)
Theoretical Linguistics Electives
Analysis of an Uncommonly Taught Language (LIN 526)
Morphology and Word Formation (LIN 624)
Phonetics (LIN 522)
Phonology I (LIN 523)
Phonology II (LIN 623)
Phonology Seminar (LIN 653)
Semantics (LIN 625)
Syntax II (LIN 621)
Syntax Seminar (LIN 651)
Other Electives
Psycholinguistics (PSY 520)

FINAL PROJECT (6 CREDITS)

DEPARTMENT OF LINGUISTICS · STONY BROOK