

Language Technology research and education in Latvia

PhD education arrangements in general

Master degree is required for admission to doctoral studies. Degree *Doktors*, which usually is internationally recognized as a Ph.D., can be achieved after public defence of a doctoral thesis. Doctoral studies last three to four years of full-time or part-time studies. They include advanced studies of the subject as well as a research towards doctoral thesis. Publications in internationally quoted scientific journals are required before defence of the doctoral thesis. In the past, especially while most research institutes in Latvia were outside the universities, an equivalent amount of independent research and passing of the appropriate doctoral examinations while working at a research institution very often replaced doctoral studies. At present, regular studies in doctoral study programmes at the universities are taking place and thesis research is an integral part of a study programme. More information:

- [Latvian Academic Information centre server](#),
- [Doctoral studies at the University of Latvia](#).

University of Latvia

Doctoral degree program in Computer science

[Prof. Rūsiņš Freivalds](#) is a Director of the Doctor degree program. The following subfields for studies are offered: mathematical foundations in computer science, computer and system programming, programming languages and systems, data processing systems and computer networks. Currently there are ~ 20 PhD students, two students are participants of NGSLT and working on their thesis related to CL:

- A. Ataols-Bērziņš “Automated evaluation of language similarity”;
- N. Grūzītis “Semantic Modeling of the Latvian Language “.

Doctoral degree program in Philology

Director of Doctor degree program is [Prof. Pēteris Vanags](#). The following subfields of studies are offered: general linguistics, comparable and contrastive linguistics, applied linguistics, synchronic linguistics, Latvian diachronic linguistics, Baltic philology, Germanic philology, Romance philology, Slavonic philology, Finno-Ugric philology, oriental philology, classical philology. Currently there are more than 30 PhD students. There are three PhD students who are currently writing thesis related to CL:

- I. Auziņa “Computer aided model of Latvian pronunciation”;
- E. Milčonoka “Development of G. Mancelius’ language: corpus-based study”;
- G. Nešpore “Semantics of motion verbs in modern Latvian and Lithuanian: contrastive aspect”.

Liepāja Academy of Pedagogy

PhD programme in linguistics was started in autumn 2005. Program director is Prof. Benita Laumane. Computational linguistic course “Novel technologies in Linguistics” is included as mandatory in this programme.

Education for Master's degree

Master program in Computer science

The [Institute of Mathematics and Computer Science](#), University of Latvia has long standing traditions in supporting education process at the University of Latvia. It has been traditionally established since the foundation of the Institute that leading researchers deliver lectures, hold seminars and supervise graduation theses at the Faculty of Physics and Mathematics.

Currently the Institute houses the Master Studies in Computer Science at the University of Latvia. [Prof. J.Bārzdīņš](#) is Director of the Master degree program. The program consists of courses providing knowledge in the following study directions: theory of computer science; system modeling and programming; databases and information systems; programming and data processing systems; computer networks. There are no courses in Computational Linguistics.

Following master thesis related to Computational Linguistics have been defended in last years: R.Skadiņš (2001) "Object Oriented analysis and Universal Networking Language", Z. Sejāne (2004) "Automated style analysis system for Latvian", N. Grūzītis (2005) "Ontological Database of Latvian Lexicon: Architecture and Acquirement Problems", O.Zvankova (2005) "The Ontological Semantics of Latvian sentences".

Master program in Baltic Philology at University of Latvia.

Master degree program in Baltic Philology has three subprograms: Latvian literature, Latvian linguistics and Baltic linguistics, Didactics of the Latvian language and literature. There are no courses in Computational Linguistics. The program director is Prof. Pēteris Vanags.

Following master thesis related to Computational Linguistics have been defended: G. Nešpore (2005) "Paradigmatic relations of verbs with the semantic element to move in modern Latvian", K. Levāne-Petrova (2002) "Homonymy and syncretism of adverbs and other parts of speech", I. Auziņa (1998) "The syllabification patterns of standard Latvian", B. Krauze-Krūze (1998) "Computer aided Latvian language morpho-morphologic analysis", E. Milčonoka (1997) "Morphological Versions of Substantives in the Fragment of G.Mancelius' Sermon book (1654)".

Research in Language Technology

Artificial Intelligence Laboratory, Institute of Mathematics and Computers Science, University of Latvia (4 Dr., 10 eng.)

The Artificial Intelligence Laboratory (head of the Laboratory [Dr. Phys. A.Spektors](#)) has been working on Latvian language processing since 1992.

Research fields

- Corpus linguistics (Dr. Maija Baltiņa, Dr. Andrejs Spektors, Mag. Philol. [Everita Milčonoka](#), Mag. Philol. Kristīne Levāne-Petrova, Gunta Nešpore)
- Development of electronic dictionaries (Dr. Andrejs Spektors, Mag. Philol. Everita Milčonoka, Mag. Philol. Kristīne Levāne-Petrova, Gunta Nešpore, Normunds Grūzīts)
- Latvian and the Semantic Web ([Dr. Guntis Bārzdīņš](#), Dr. Andrejs Spektors, Gunta Nešpore, Normunds Grūzīts)
- Machine Translation ([Dr. Inguna Skadiņa](#), Mag. Philol. Everita Milčonoka)
- Speech synthesis ([Mag. Philol. Ilze Auziņa](#))
- Computational morphology (Dr. Andrejs Spektors, Mag. Philol. Baiba Krūze-Krauze, Dr. Inguna Skadiņa, Dr. Uģis Sarkans)

- Computer-assisted teaching aids (Dr. Andrejs Spektors, Mag. Philol. Everita Milčonoka, Mag. Philol. Kristīne Levāne-Petrova, Mag. Philol. Ilze Auziņa)

Ongoing projects

- SemTi-Kamols — resources and methodologies for efficient integration of Latvian and the latest Semantic Web technologies; automatic meaning extraction from texts (State Research Programme). Pilot application is running on xGrid (www.semti-kamols.lv);
- Universal, community-opened, on-line dictionary system (funding from Latvian Council of Science);
- Evaluation of statistical Machine Translation methods for English-Latvian translation system (funding from Latvian Council of Science);
- Latvian text-to-speech system (funding from Latvian Council of Science).

More about current activities at Artificial Intelligence Laboratory:

- *Everita Milčonoka, Normunds Grūzītis, Andrejs Spektors, Natural Language Processing at the Institute of Mathematics and Computer Science: Ten Years Later*
- *Normunds Grūzītis, Ilze Auziņa, Sanita Bērzina-Reinsone, Kristīne Levāne-Petrova, Everita Milčonoka, Gunta Nešpore, Andrejs Spektors, Demonstration of Resources and Applications at Artificial Intelligence Laboratory, IMCS, UL*
- *Ilze Auziņa, Latvian Text-to-Speech System*
- *Inguna Skadiņa, Machine Translation for Latvian*

Laboratory of Phonetics and Computational Linguistics, Department of Baltic Philology, UL

The Laboratory of Phonetics and Computational Linguistics (head [Juris Grigorjevs](#)) is founded in 2000 at Department of Baltic Philology. The Laboratory provides course in acoustic phonetics for Master degree students. Master and doctoral students participate in project “Development of Latvian Phonology”. Research activities are related to acoustic studies of Latvian sound system. In cooperation with Estonian institute of Cybernetics the database of Latvian phonemes has been developed.

Tilde Company

Established in 1991, Tilde is the leading developer of Latvian language software products. Tilde provides the following language technology products for Latvian and Lithuanian languages: proofing tools, morphological analysis tools, electronic dictionaries and translation tools. Besides the elaboration of existing products, Tilde expands its work in new areas of NLP - machine translation, information retrieval and speech technologies.

Ongoing projects

- [EuroTermBank](#) - Collection of Pan-European Terminology Resources through Cooperation of Terminology Institutions (e-Content programme)
- eRMIONE - e-learning Resource Management service for InterOperability Networks in the European cultural heritage domain (e-Ten programme)

- "Development of the Pilot Version of the Baltic EU Languages Electronic Dictionary with Automated Translation Features " (ERAF)

Links

- University of Latvia (www.lu.lv)
- Institute of Mathematics and Computer Science, UL (<http://www.lumii.lv>)
- Artificial Intelligence Laboratory, IMCS (www.ailab.lv)
- Laboratory of Phonetics and Computational Linguistics at Faculty of Philology, (www.lu.lv/filol/Baltu_nodala/Fonet_labor.htm)
- Liepāja Academy of Pedagogy (<http://www.lieppa.lv>)
- Tilde (www.tilde.lv)