

Curriculum Vitae: Sanda Martinčić-Ipšić

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HR-51000, Rijeka <http://www.inf.uniri.hr>
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EDUCATION

Ph.D., Computer Science, University of Zagreb, Faculty of Electrical Engineering and Computing, 2002-2007.

Thesis Topic: *Croatian Speech Recognition and Synthesis Based on Context-Dependent Hidden Markov Models*. Supervisor: Slobodan Ribarić.

M.Sc., IT Management, University of Ljubljana, Faculty of Economy, 1996-1999.

Thesis Topic: *The Model for Control of Medicine Consumption*. Supervisor: Gortan Resinovič.

B.E., Computer Science, University of Ljubljana, Faculty of Computer Science and Informatics, 1988-1994.

Thesis Topic: *The Model for Evaluation of Decision Support Methods*. Supervisor: Vladislav Rajkovič.

PROFESSIONAL POSITIONS

Associate Professor

Department of Informatics, University of Rijeka 2014 - present

Head of Chair for Intelligent Systems

Department of Informatics, University of Rijeka 2009 - present

Visiting Professor

Erasmus Grant, teaching topics in Theoretical Computing, Department of Mathematics and Computer Science, Faculty of Education, University of Ljubljana, Slovenia, October 2010.

Assistant Professor

Department of Informatics, University of Rijeka 2009 - 2014.

Senior Assistant

Department of Informatics, University of Rijeka 2007 - 2009.

Assistant

Faculty of Humanities and Social Sciences, University of Rijeka 2002 - 2007.

Computer Science Expert

Polytechnics of Rijeka 2001 - 2002.

Computer Science Consultant, Project Manager

Health Insurance Institute of Slovenia 1995 - 2001.

Microsoft Sales

Atlantis Group, Ljubljana, Slovenia 1994 - 1995.

RESEARCH INTERESTS

Natural Language Processing, Complex Networks, Language Networks, Automatic Speech Recognition, Speech Synthesis, Corpora Development, Speech and Language Technologies

RESEARCH PROJECTS

Management Committee Member

ICT COST Action CA15109: European Cooperation for Statistics of Network Data Science”, **COSTNET**, 2016 - 2020.

ICT COST Action IC1307: The European Network on Integrating Vision and Language (**iV&L Net**): Combining Computer Vision and Language Processing For Advanced Search, Retrieval, Annotation and Description of Visual Data” iV&L Net, 2014 - 2018.
 ICT COST Action IC1302: Semantic keyword-based search on structured data sources - **KEYSTONE**” , 2013 - 2017.

Project Leader

LangNet, Language Networks, University of Rijeka, 7 co-workers, research grant, 2014 -
Research Class, Science Foundation University of Rijeka, 5 co-workers, 40 participants, research in informatics. 2010 - 2012.

Researcher

- Natural and Multimodal Man-Machine Communication, Uniri, 2014 -
- Speech Technologies, MZOS, (318-0361935-0852, 009-0361935-085) 2007 - 2013.
- Grapheme-Phoneme distributions for Croatian Language, Bilateral Croatian Austrian project 2008.
- Man-Machine Communication, MZT (009012), 2002 - 2006.
- COST 278 Spoken Language Interaction in Telecommunication SIG-Broadcast News Transcription (BNT) 2001 - 2005.
- CRO-SPEECHDAT, Bilateral Croatian Slovenian project 2002 - 2003.

PUBLICATIONS

Journal publications

S. Martinčić-Ipšić, E. Močibob, M. Perc. Link prediction on Twitter. PLOS ONE 12(7): e0181079. 2017. <https://doi.org/10.1371/journal.pone.0181079>

N. Matas, A. Meštrović, S. Martinčić-Ipšić. Comparing Network Centrality Measures as Tools for Identifying Key Concepts in Complex Networks: A Case of Wikipedia, Journal of Digital Information Management (JDIM), vol. 15(4), pp. 203-213, 2017.

R. Piltaver, M. Luštrek, M. Gams, S. Martinčić-Ipšić. What makes classification trees comprehensible?, Expert Systems with Applications, vol. 62, pp. 333-346, 2016. <http://dx.doi.org/10.1016/j.eswa.2016.06.009>.

S. Beliga, A. Meštrović, S. Martinčić-Ipšić. Selectivity-Based Keyword Extraction Method. International Journal on Semantic Web and Information Systems (IJSWIS), vol.12, No.3, pp. 1-26, 2016.

S. Martinčić-Ipšić, D. Margan, A. Meštrović, Multilayer Network of Language: a Unified Framework for Structural Analysis of Linguistic Subsystems. Physica A: Statistical Mechanics and its Applications, vol. 457, pp. 117-128, 2016. <http://dx.doi.org/10.1016/j.physa.2016.03.082>

A. Meštrović, S. Martinčić-Ipšić; M. Matešić; Syllabification based on maximal onset principle for Croatian/Postupak automatskoga slogovanja temeljem načela najvećega pristupa i statistika slogova za hrvatski jezik. Govor/Speech, Vol 32(1), 3-34, 2015.

S. Beliga; A. Meštrović; S. Martinčić-Ipšić. An Overview of Graph-Based Keyword Extraction Methods and Approaches. Journal of Information and Organizational Sciences 39 (1), 1-20, 2015.

- M. Pobar; S. Martinčić-Ipšić; I. Ipšić. Optimization of Cost Function Weights for Unit Selection Speech Synthesis Using Speech Recognition. *Neural network world*. 22(5), 429-441, 2012.
- S. Martinčić-Ipšić; M. Pobar; I. Ipšić. Croatian Large Vocabulary Automatic Speech Recognition. *Automatika*. 52(2), 147-157, 2011.
- S. Martinčić-Ipšić; S. Ribarić; I. Ipšić. Acoustic Modelling for Croatian Speech Recognition and Synthesis. *Informatika*. 19(2), 227-254, 2008.
- A. Meštrović; L. Bernić; M. Pobar; S. Martinčić-Ipšić; I. Ipšić. A Croatian Weather Domain Spoken Dialog System Prototype. *CIT. Journal of computing and information technology*. 18(4), 309-316, 2010.
- M. Pobar; S. Martinčić-Ipšić; I. Ipšić. Računalni sustav za tvorbu hrvatskoga govora. *Engineering review : znanstveni časopis za nove tehnologije u strojarstvu, brodogradnji i elektrotehnici*. 28(2), 31-44, 2008.
- A. Meštrović; S. Martinčić-Ipšić; M. Čubrilo. Weather Forecast Data Semantic Analysis in F-Logic. *Journal of Information and Organizational Sciences*. 31(1), 115-129, 2007.
- S. Martinčić-Ipšić; I. Ipšić. Croatian HMM-based Speech Synthesis. *Journal of Computing and Information Technology, CIT*. 14(4), 307-31, 2006.
- S. Martinčić-Ipšić; M. Matešić; I. Ipšić. Korpus hrvatskoga govora. *Govor: časopis za fonetiku*. I(2), 135-150, 2004.

Book chapters

- S. Šišović, S. Martinčić-Ipšić, A. Meštrović. Toward Network-based Keyword Extraction from Multitopic Web Documents. *Social sciences via network analysis and computation*, Kanduć, Tadej (ur.), Frankfurt am Main, Berlin, Bern, Bruxelles, New York, Oxford, Wien: Peter Lang, 2015.
- H. Rizvić, S. Martinčić-Ipšić, A. Meštrović. Network Motifs Analysis of Croatian Literature. *Social sciences via network analysis and computation*, Kanduć, Tadej (ur.), Frankfurt am Main, Berlin, Bern, Bruxelles, New York, Oxford, Wien: Peter Lang, 2015.
- R. Piltaver, M. Luštrek, M. Gams, S. Martinčić-Ipšić. Comprehensibility of Classification Trees Survey Design Validation. *Social sciences via network analysis and computation*, Kanduć, Tadej (ur.), Frankfurt am Main, Berlin, Bern, Bruxelles, New York, Oxford, Wien: Peter Lang, 2015.
- D. Margan; S. Martinčić-Ipšić; A. Meštrović. Preliminary Report on the Structure of Croatian Linguistic Co-occurrence Networks. *Towards Solving the Social Science Challenges with Computing Methods*. Mileva Boshkoska, Biljana (ur.). Frankfurt am Main, Berlin, Bern, Bruxelles, New York, Oxford, Wien : Peter Lang, 93-104. 2015.
- L. Načinović; S. Martinčić-Ipšić. Prosodic Modelling for Croatian Speech Synthesis. *Towards Solving the Social Science Challenges with Computing Methods*. Mileva Boshkoska, Biljana (ur.). Frankfurt am Main, Berlin, Bern, Bruxelles, New York, Oxford, Wien : Peter Lang, 105-118. 2015.

D. Margan, S. Martinčić-Ipšić and A. Meštrović. Network Differences Between Normal and Shuffled Texts: Case of Croatian. *Studies in Computational Intelligence, Complex Networks V*. Vol.549. Springer pp. 275-283, 2014.

Ipšić, Ivo; S. Martinčić-Ipšić. Croatian Speech Recognition. *Advances in Speech Recognition*, Noam R. Shabtai (ed.). Rijeka, Croatia : SCIYO, 123-140, 2010.

S. Martinčić-Ipšić. Raspoznavanje i sinteza hrvatskoga govora. Razlike između bosanskoga/ bošnjačkoga, hrvatskoga i srpskoga jezika / Die Unterschiede zwischen dem Bosnischen/ Bosniakischen, Kroatischen und Serbischen. Tošović, Branko(ed.). Graz : Lit Verlag, 678-697, 2008.

Selected conference proceedings

S. Beliga, S. Martinčić-Ipšić. "Network-Enabled Keyword Extraction for Under-Resourced Languages". *Semantic Keyword-Based Search on Structured Data Sources LNCS 10151*, Cal, A., Gorgan, D., Ugarte, M. (ur.). Cham : Springer International Publishing, COST Action IC1302 Second International KEYSTONE Conference, Cluj-Napoca, Romania, pp. 124-135, 2017.

S. Martinčić-Ipšić, T. Miličić, A. Meštrović. "Text Type Differentiation Based on the Structural Properties of Language Networks". *Information and Software Technologies, 22st International Conference, ICIST 2016, Lithuania*, (eds). G. Dregvaite and R. Damasevicius, *Communications in Computer and Information Science*, Springer International Publishing, Volume 639, 536-548, 2016.

S. Martinčić-Ipšić, E. Močibob, A. Meštrović. "Link Prediction on Tweets' Content". *Information and Software Technologies, 22st International Conference, ICIST 2016, Lithuania*, (eds). G. Dregvaite and R. Damasevicius, *Communications in Computer and Information Science*, Springer International Publishing, Volume 639, 559-567, 2016.

T. Ban Kirigin, A. Meštrović, S. Martinčić-Ipšić. Towards a Formal Model of Language Networks. *Information and Software Technologies ICIST 2015, Lithuania*, (eds). G. Dregvaite and R. Damasevicius, *Communications in Computer and Information Science*, Springer International Publishing, Volume 538, 469-479, 2015.

N. Matas; S. Martinčić-Ipšić; A. Meštrović. Extracting Domain Knowledge by Complex Networks Analysis of Wikipedia Entries. *IEEE MIPRO 2015*. pp. 1955-1960, 2015.

H. Rizvić; S. Martinčić-Ipšić; A. Meštrović. Network Motifs Analysis of Croatian Literature. *6th International Conference on Information Technologies and Information Society (ITIS2014)*. Novo mesto, Slovenija, 2014.

S. Šišović; S. Martinčić-Ipšić; A. Meštrović. Toward Network-based Keyword Extraction from Multitopic Web Documents. *6th International Conference on Information Technologies and Information Society (ITIS2014)*. Novo mesto, Slovenija, 2014.

S. Beliga; S. Martinčić-Ipšić. Node Selectivity as a Measure for Graph-Based Keyword Extraction in Croatian News. *6th International Conference on Information Technologies and Information Society (ITIS2014)*. Novo mesto, Slovenija, 2014.

S. Beliga; A. Meštrović; S. Martinčić-Ipšić. Toward Selectivity Based Keyword Extraction for Croatian News. *Surfacing the Deep and the Social Web (SDSW 2014)*. CEUR Proc. Vol-, 1-14. 2014.

- R. Piltaver; M. Luštrek; M. Gams; S. Martinčić-Ipšić. Comprehensibility of Classification Trees Survey Design Validation. 6th International Conference on Information Technologies and Information Society - ITIS2014. Novo mesto, Slovenija, 2014.
- R. Piltaver; M. Luštrek; M. Gams; S. Martinčić-Ipšić. Comprehensibility of classification trees survey design. Intelligent Systems-IS 2014 (Volume A), Institut Jožef Stefan, Ljubljana, 70-74, 2014.
- D. Margan, A. Meštrović and S. Martinčić-Ipšić. Complex Networks Measures for Differentiation between Normal and Shuffled Croatian Texts. IEEE MIPRO 2014, Croatia, pp.1819-1823, 2014.
- S. Beliga; S. Martinčić-Ipšić. Non-Standard Words as Features for Text Categorization. IEEE MIPRO 2014, Croatia, pp.1415-1419, 2014.
- S. Šišović, S. Martinčić-Ipšić and A. Meštrović. Comparison of the language networks from literature and blogs. IEEE MIPRO 2014, Croatia, pp.1824-1829, (2014).
- D. Margan; S. Martinčić-Ipšić; A. Meštrović. Preliminary Report on the Structure of Croatian Linguistic Co-occurrence Networks. 5th International Conference on Information Technologies and Information Society, Slovenia, 89-96, 2013.
- K. Ban; A. Meštrović; S. Martinčić-Ipšić. Initial Comparison of Linguistic Networks Measures for Parallel Texts. 5th International Conference on Information Technologies and Information Society-ITIS 2013, Slovenija, 97-104, 2013.
- L. Načinović; B. Perak; A. Meštrović; S. Martinčić-Ipšić. Identifying Fear Related Content in Croatian Texts. 8th Language Technologies Conference, Slovenia, 153-156, 2012.
- S. Beliga; S. Martinčić-Ipšić. Text Normalization for Croatian Speech Synthesis. MIPRO junior, Vol. V./D. IEEE, 382-387, 2011.
- S. Beliga; M. Pobar; S. Martinčić-Ipšić. Normalization of Non-Standard Words in Croatian Texts. Text, Speech and Dialogue extension to Lecture Notes in Artificial Intelligence LNAI6836. Czech, 1-9, 2011.
- L. Načinović; M. Pobar; S. Martinčić-Ipšić; I. Ipšić. Automatic Intonation Event Detection Using Tilt Model for Croatian Speech Synthesis. INFUTURE2011, Croatia, 383-391, 2011.
- A. Meštrović; L. Bernić; M. Pobar; S. Martinčić-Ipšić; I. Ipšić. Overview of a Croatian Weather Domain Spoken Dialogue System Prototype. 32nd International Conference on Information Technology Interfaces-ITI2010, 103-108, 2010.
- L. Načinović; S. Martinčić-Ipšić; I. Ipšić. Intonation Modeling for Croatian Speech Synthesis. 33rd International Convention on Information and Communication Technology, Electronics and Microelectronics-MIPRO 2010, Vol. 3 - CIT, IEEE, 253-257, 2010.
- S. Martinčić-Ipšić; M. Pobar; I. Ipšić. Automatic Evaluation of Synthesized Speech. 31st International Conference on Information Technology Interfaces-ITI2009, 305-310, 2009.
- L. Načinović; S. Martinčić-Ipšić; I. Ipšić. Statistical Language Models for Croatian Weather-domain Corpus. 333-340, 2009.

L. Načinović; M. Pobar; I. Ipšić; S. Martinčić-Ipšić. Grapheme-to-Phoneme Conversion for Croatian Speech Synthesis. 32nd International Convention on Information and Communication Technology, Electronics and Microelectronics MIPRO2009. Vol(3)-CIT. IEEE, 318-323, 2009.

L. Bernić; S. Martinčić-Ipšić; I. Ipšić. A Croatian Spoken Dialog Manager Prototype. 31st international convention on information and communication technology, electronics and microelectronics-MIPRO2008, IEEE, 199-203, 2008.

A. Meštrović; S. Martiničić-Ipšić; I. Ipšić. Semantic Analysis in F-logic. Semantic Representation of Spoken Language 2007, DFKI, Salamanca, 59-66, 2007.

S. Martinčić-Ipšić; J. Žibert; I. Ipšić; F. Mihelič; N. Pavešić. Bilingual Speech Recognition for Weather Information Retrieval Dialog System. 6th International Conference on Text, Speech and Dialogue-TSD2003, Springer, 380-387, 2003.

J.Žibert; S. Martinčić-Ipšić; M. Hajdinjak; I. Ipšić; F. Mihelič. Development of a Bilingual Spoken Dialog System for Weather Information Retrieval. 8th European Conference on Speech Communication and Technology-EUROSPEECH2003. Geneva, ISCA, 1917-1920, 2003.

Invited talks

- Multilayer Language Networks (Večplastna jezikovna omrežja), NetSLO 2017, Faculty of Computer Science and Informatics, University of Ljubljana, 26.1.2017.
- Language Networks: A multilayered perspective, Faculty of Informatics, Kaunas University of Technology, 12.10.2016.
- Language Networks, Faculty of Computer Science and Engineering, Skopje, 5.5.2016.
- Big Data, Faculty of Information and Communication Technologies, Bitola, 3.5.2016.
- Language Networks, Faculty of Electrical Engineering and Computing, Croatian Society for Language Technologies, Zagreb, 15.5.2014.
- Hidden Markov Models for Speech Technologies, Scientific colloquium, Mathematicians and Physicists Society, Rijeka, 24.05.2012.
- Croatian Speech Recognition and Synthesis Based on Context-Dependent Hidden Markov Models. CyberTechs Society, Rijeka 9.4.2008.

ACADEMIC SERVICE

- **Editor:** Informatica, An International Journal of Computing and Informatics , <http://www.informatica.si/>, ISSN: 0350-5596 January 2015 - present; International Journal of Emerging Research and Solutions in ICT, <http://www.ersict.org/editorialboard/>, eISSN: 1857-9981 April 2015 - present
- **Reviewer International Journals:** Scientific Reports (2017); Information Technology and Control (2017); International Journal on Semantic Web and Information Systems (IJSWIS) (2017); International Journal of Data Mining and Bioinformatics (2017); MDPI Information (2017); Expert Systems with Applications, Elsevier (2016); Physica A: Statistical Mechanics and its Applications, Elsevier (2016); PLoS ONE (2017, 2016, 2015); Transactions on Computational Collective Intelligence, Springer, (2015); Journal of Complex Networks (2014); CIT (2017, 2016, 2012); Automatika (2014, 2011, 2010)
- **Projects / Grants Reviewer:** Croatian Science Foundation, UNIRI Projects
- **Program Committee Member:** IVUS(2017), IKC (2017, 2016, 2015), PReMI 2015, ACECS 2015, ICIST (2016, 2015, 2014), ITIS (2015, 2014, 2013), TransTech2013, Research Class (2012, 2011, 2010).
- **Session Chair:** Information Technology Applications, Special Session on Language Technologies, 22nd International Conference, ICIST 2016, Druskininkai, Lithuania, October 13-15, 2016
1st International Workshop on Language Technologies and Applications (LTA'16),

Gdansk, part of IEEE Federated Conference on Computer Science and Information Systems, 2016;
 Challenge Track, 2nd International KEYSTONE Conference - IKC 2016, Cluj-Napoca, Romania;
 Challenge Track, 1st International KEYSTONE Conference - IKC 2015, Coimbra Portugal;
 International Conference on Information Technologies and Information Society - ITIS, Novo mesto (2014, 2013)
 • **Conference Paper Reviewer:** IVUS, LTA, IKC, ACECS, ICIST, MIPRO, LT, ITIS, ITI 2008 - present

TEACHING
EXPERIENCE

Undergraduate courses

Introduction to Computer Science, Theoretical Computing, Compilers and Interpreters, Department of Informatics, University of Rijeka 2009-present

Graduate courses

Natural Language Processing, Decision Support Systems, IT Project Management, Department of Informatics, University of Rijeka 2009-present

PhD courses

Information Retrieval and Text Mining, Business Intelligence, Department of Informatics, University of Rijeka 2013-present

Thesis supervision

2 PhD student supervising, PhD in Informatics, Department of Informatics, University of Rijeka 2014-present

2 PhD students co-supervising, PhD in Informatics, Department of Informatics, University of Rijeka 2013-present

11 Master Thesis supervised, Department of Informatics, Department of Mathematics, Faculty of Maritime Studies, University of Rijeka 2010-present

12 Bachelor Thesis supervised, Department of Informatics, Faculty of Humanities and Social Sciences, University of Rijeka 2010-present

- Supervised Student Slobodan Beliga, for his Thesis received the University of Rijeka Rector's Award, 2011.
- Supervised Student Tanja Miličić, received the University of Rijeka Rector's Award, scholarship for excellence and award for student scientific publication, 2017.

PROFESSIONAL
SERVICE

- **ISVU Coordinator** 2007 - present
- **MOZVAG Coordinator** 2008 - 2012.

PROFESSIONAL
PROJECTS

- **CO-project manager:** National IS for complementary health insurance, Vzajemna, Health Insurance Institute, Slovenia, 1997-2001.
- **IT Consultant:** National IS for compensations in health insurance, Health Insurance Institute, Slovenia, 1998-2000.
- **Developer:** National health insurance card, Health Insurance Institute, Slovenia, 1997-1999.

GRANTS AND AWARDS	<ul style="list-style-type: none"> • European Social Fund and Republic of Slovenia grant, Visiting Teachers and Experts University of Ljubljana 2016-2018, Faculty of Administration, 2017. • Erasmus+ grant, Visiting professor, Faculty of Information and Communication Technologies, St. Kliment Ohridski University, Bitola, Macedonia, 2016. • TransTech13 grant, University of Rijeka Science Foundation, 2013. • Research Class grant, University of Rijeka Science Foundation, 2010, 2011, 2012. • Erasmus grant, Visiting professor, University of Ljubljana, Slovenia, 2010. • MSc grant, Health Insurance Institute of Slovenia, 1996-1999.
PROFESSIONAL MEMBERSHIPS	Croatian Language Technologies Society. Slovene Language Technologies Society. CyberTechs Society
TECHNICAL SKILLS	<p>Operating Systems: Linux, MS Windows</p> <p>Programming Languages: C/C++, AM, SQL, Perl, Python, PL/I</p> <p>Tools: HTK, HTS, Gephi, Weka, L^AT_EX</p>
LANGUAGES	<i>Fluent:</i> Croatian, Slovene, English <i>Working proficiency:</i> German, Italian
PRIVAT	Married and mother of two children (born in 2000, 2004).