CURRICULUM VITAE

Family name, First name: **Lavrač Nada**

Nationality: **Slovenian**

URL for web site: http://kt.ijs.si/NadaLavrac/

Google Scholar link

Number of citations: 9743 (25.8.2016)

H-index: 45 (25.8.2016)

EDUCATION

1990 PhD in Technical Sciences, University of Maribor, Slovenia
1984 MSc in Computer Science, University of Ljubljana, Slovenia
1978 BSc in Technical Mathematics, University of Ljubljana, Slovenia

CURRENT POSITIONS

2004 – *Head of Department of Knowledge Technologies*, Jožef Stefan Institute, Ljubljana, Slovenia
2004 – *Full Professor* at University of Ljubljana, Jožef Stefan International Postgraduate School, Ljubljana, University of Nova Gorica, Slovenia (since 2003)
2002 – *Scientific councillor*, Jožef Stefan Institute, Ljubljana, Slovenia

PREVIOUS POSITIONS

1999 – 2003 *Head of Intelligent Data Analysis and Computational Linguistics Research Group* at JSI Department of Intelligent Systems, Jožef Stefan Institute, Ljubljana, Slovenia
1993 – 1999 *Coordinator* of JSI international research projects (50%, advising on proposal writing and managing for JSI EU projects), and *Research associate* (50%)
1993 – 1999 *Research assistant* and *Postdoctoral researcher* at JSI

FELLOWSHIPS AND AWARDS

2013 *Zois Recognition Award* for important contributions to science, research and development in the area of intelligent data analysis
2007 *ECCAI Fellow Award* for pioneering research and advances in the field of Artificial Intelligence in Europe
1998 *Ambassador of Science of the Republic of Slovenia* for outstanding research and contribution to international recognition of Slovenian science
1986 *National award for research excellence* (Boris Kidrič Fund Award) for research in knowledge synthesis and qualitative modelling (system KARDIO for ECG diagnosis of cardiac arrhythmias, later published as monograph Kardio: A Study in Deep and Qualitative Knowledge for Expert Systems, MIT Press, 1989, co-author)

SUPERVISION and co-SUPERVISION

- **Phd Theses: Completed (16):** Anita Valmarska (2018), Matej Mihelčić (2018), Jan Kralj (2017), Janez Kranjc (2017), Matic Perovšek (2016), Anže Vavpetič (2016), Miha Grčar (2016), Borut Sluban (2014), Jasmina Smailović (2014), Vid Podpečan (2013), Dragana Miljkovic (2013), Matjaž Juršič (2013), Petra Kralj Novak (2009), Igor Trajkovski (2007), Branko Kavšek (2004), Darko Zupanič (2000), **Current (5):** Simon Brmež, Matej Martinc, Lorena Mihelač, Nataša Terzić, Blaž Škrlj.
- **MSc Theses: Completed (8):** Blaž Škrlj (2018), Iza Škerjanc (2017), Anja Šostar (2016), Joel Plisson (2007), Jernej Klemenc (2005), Branko Kavšek (2002), Darko Zupanič (1997), Dunja Mladenić (1995).

TEACHING ACTIVITIES

2004 – *Data Mining and Knowledge Discovery*, Jožef Stefan International Postgraduate School
2004 – *Data Mining and Knowledge Discovery*, University of Ljubljana
2003 – *Data Mining and Knowledge Discovery, Knowledge management*, University of Nova Gorica, Slovenia
1987 – 2002 *Machine Learning*, University of Klagenfurt, Austria
1975 – 1977 *Mathematics, Teaching Assistant*, University of Ljubljana, Slovenia

MAJOR COLLABORATIONS, RESEARCH VISITS AND TEACHING ABROAD

2015 Stanford University, US (2 weeks)

2013 Aalto University, Finland (2 months)
2007 Leiden University, The Netherlands (2 months)
2004, 2005 Universidade Nova de Lisboa, Portugal (1 month)
1997 – 2002 University of Bristol, UK (6 months in several visits)
1992 Katholieke Universiteit Leuven, Belgium (6 months)
1992 University of Sao Paulo in Sao Carlos, Brazil (1 month)
1988 George Mason University, Fairfax, Virginia, USA (3 months)
1985 University of Illinois at Urbana-Champaign, USA (3 months)

KEYNOTE SPEAKER

Conferences ISWC-2017, LPNMR-2015, JCMI-2014, ECCB-2014, CBMS-2012, MedInfo-2010, KiCS-2009, PAKDD-2005, GfKl 2005, AIMDM-1999, EPIA-1999, JICSLP-1998, PADD-1998

ORGANISATION OF SCIENTIFIC MEETINGS (selected, since 2004)

Chair ICCC-2014, ILP-2012, AIME-2011

Co-chair SOKD 2008, 2009, 2010, ILP 2008, IDA-2007, DS-2006, ACAI-2005

INSTITUTIONAL RESPONSIBILITIES

2007 –2010 *Member* of the JSI Research Council (2009 – 2010 vice president)
1995 – 2002 *Member* of JSI Research Council (first female council member, since foundation in 1949)
2004 *Initiator* of New Media and e-Science MSc and PhD, and ICT MSc and PhD programs, and *co-founder* of International Postgraduate School Jožef Stefan, Ljubljana, Slovenia
2000 *Initiator and co-founder* of Centre for Knowledge Transfer in Information Technologies at JSI (its activities include Videolectures http://videolectures.net)

COMMISSIONS OF TRUST

2000 – *Reviewer (evaluator)* of EU research project proposals, of Czech Agency grants, Finish Agency grants, Swedish Agency grants, FFG Austrian Agency grants
2008 *Member of Panel* of high-level independent experts (chaired by Sir David King) for Ex-post Evaluation of 6FP R&D activities of European JRC
1999 – *Member of Editorial Boards of Scientific Journals:* Artificial Intelligence in Medicine, AI Communications, New Generation Computing, Applied Artificial Intelligence, Machine Learning, Data Mining and Knowledge Discovery
1999 – *Editor of 4 Journal Special Issues:* Machine Learning 76(1), 2009; Machine Learning 57(1–2), 2004; Artificial Intelligence in Medicine (AIM) 23(1), 2001; AIM 16(1), 1999
1993 – *Member of program committees* for many conferences including a selection of conferences organized in 2016: ECML/PKDD-2016, IDA-2016, DS-2016, ILP-2016

MEMBERSHIPS OF SCIENTIFIC SOCIETIES

2001 – *Founding member* of the International Machine Learning Society (IMLS)
2000 – *Chair* of Slovenian Statistical Society section on Data Mining
1999 – *Member* of the Artificial Intelligence in Medicine (AIME) Society Board
1996 – Vice-president of the European Coordination Committee for Artificial Intelligence (ECCAI)
1990 – Member of Slovenian AI Society (SLAIS)

Ten representative articles:

1. ADHIKARI, Prem Raj, VAVPETIČ, Anže, KRALJ, Jan, LAVRAČ, Nada, HOLLMÉN, Jaakko. Explaining mixture models through semantic pattern mining and banded matrix visualization. Machine learning, 2016, 37 p., doi: 10.1007/s10994-016-5550-3.
2. MILJKOVIĆ, Dragana, PODPEČAN, Vid, STARE, Tjaša, MOZETIČ, Igor, GRUDEN, Kristina, LAVRAČ, Nada. Incremental construction of biological networks by relation extraction from literature. Current bioinformatics, 2015, vol. 10, no. 2, p. 177-190.
3. PEROVŠEK, Matic, VAVPETIČ, Anže, KRANJC, Janez, CESTNIK, Bojan, LAVRAČ, Nada. Wordification: Propositionalization by unfolding relational data into bags of words. Expert systems with applications, 2015, vol. 42, no. 17/18, p. 6442-6456.

4. SLUBAN, Borut, GAMBERGER, Dragan, LAVRAČ, Nada. Ensemble-based noise detection: Noise ranking and visual performance evaluation. Data mining and knowledge discovery, 2014, vol. 28, no. 2, p. 265-303.
5. GRČAR, Miha, TRDIN, Nejc, LAVRAČ, Nada. A methodology for mining document-enriched heterogeneous information networks. The Computer Journal, 2013, vol. 56, no. 3, p. 321-335.
6. PODPEČAN, Vid, LAVRAČ, Nada, MOZETIČ, Igor, KRALJ NOVAK, Petra, TRAJKOVSKI, Igor, LANGOHR, Laura, KULOVESI, Kimmo, TOIVONEN, Hannu, PETEK, Marko, MOTALN, Helena, GRUDEN, Kristina. SegMine workflows for semantic microarray data analysis in Orange4WS. BMC bioinformatics, 2011, vol. 12, no. 416, p. 416-1-416-16.
7. KRALJ NOVAK, Petra, LAVRAČ, Nada, GAMBERGER, Dragan, KRSTAČIČ, Antonija. CSM-SD: methodology for contrast set mining through subgroup discovery. Journal of Biomedical Informatics, 2009, vol. 42, no. 1, p. 113-122.
8. KRALJ NOVAK, Petra, LAVRAČ, Nada, WEBB, Geoffrey I. Supervised descriptive rule discovery: A unifying survey of contrast set, emerging pattern and subgroup mining. Journal of Machine Learning Research, 2009, vol. 10, p. 377-403.
9. TRAJKOVSKI, Igor, LAVRAČ, Nada, TOLAR, Jakub. SEGS: search for enriched gene sets in microarray data. Journal of Biomedical Informatics, 2008, vol. 41, no. 4, p. 588-601.
10. GARRIGA, Gemma C., KRALJ NOVAK, Petra, LAVRAČ, Nada. Closed sets for labeled data. Journal of Machine Learning Research, 2008, vol. 9, no. 4, p. 559-580.

Research monographs (one in last ten years):

1. Foundations of Rule Learning, Springer, 2012 (author, with J. Fuernkranz, D. Gamberger, 334 pages)
2. Inductive Logic Programming: Techniques and Applications, Ellis Horwood, 1994 (author, with S. Džeroski, 293 pages)
3. Kardio: A Study in Deep and Qualitative Knowledge for Expert Systems, The MIT Press, 1989 (author, with I. Bratko and I. Mozetič, 260 pages)
4. Prolog through Examples: A Practical Programming Guide, Sigma Press, 1988 (author, with I. Kononenko, 197 pages)
5. Editor of four other books and numerous conference proceedings

Research projects funded by ARRS national research agency (acting as PI in each):

2016-2018 HinLife:Analysis of heterogeneous information networks for knowledge discovery in lifesciences (€ 210,000),
2016-2018 Ingrapa: Molecular bases of interactions among the grapevine and phytoplasmal causing agents of the grapevine yellows diseases (€ 60,000),
2013-2016 SemDm: Development and applications of new semantic data mining methods in life sciences (€ 202,000),
2011-2014 PlantDef: Growth and defense trade-offs in multitrophic interaction between potato and its two major pests (€ 55,000),
2009-2012 SisBIO:Systemic biology approaches to analyzing interactions between pathogens and plants (€ 82,000),
2009-2012 SoKD: Semantic rule discovery in the context of Web services (€ 106,000),
2007-2008 GMOharmonization: Harmonization of technologies for continued follow up of genetically modified organisms in agriculture (€ 36,000).

Research projects funded by the EU (started and completed within last 10 years, PI in each):

2013-2016 ConCreTe (STREP, EC contribution 396,000 €)
2013-2016 WHIM (STREP, EC contribution 361,000 €)
2013-2016 PROSECCO (CA, EC contribution 100,000 €)
2012-2014 MUSE (STREP, EC contribution 354,000 €)
2010-2012 eLICO (STREP, EC contribution 206,000 €)
2008-2011 BISON (STREP, EC contribution 240,000 €)
2007-2010 Healthreats (STREP, EC contribution 150,000 €)
2004-2008 ECOLEAD (IP, EC contribution 266,000 €)
Coordinator of several bilateral projects: with UK, Czech Republic, Croatia and US.

Other projects (acting as PI in each):
2016-2017 Development of a Prototype program solution for support of semi-automatic extraction and management of monolingual and multilingual corpora (€ 55,000),
2009 GMO track: Prototype Decision Support System (€ 24,000),
2008 Systher: Development of techniques for integrating knowledge sources and analytical procedures (€ 20,000),
2006 MEDINET+: Development of a primary health-care network in Slovenia (€ 33,000),
2004-2005 MEDINET: Analysis of factors in setting up a network of health care personnel (€ 20,000), etc.

Breakthrough achievements, engagement and supervision

- ILP: Inductive Logic Programming. Coordinator of EU research network ILPnet (1993-1996). Coeditor of two special issues (NGC, DAMI). Book author: N.Lavrač, S. Džeroski: Inductive Logic Programming: Techniques and Applications, Ellis Horwood, 1994. Workpackage leader in EU projects ILP (1993–96) in ILP2 (1996–99). Co-chair of the ILP-1997 conference and summer school in Prague.
- IDAMAP: Intelligent Data Analysis in Medicine and Pharmacology. Founder and member of programme committees of IDAMAP 1996, 1997, 2000 workshops, organised yearly since 1996. Author of 2 encyclopaedia chapters, author of reference paper published in Artificial Intelligence in Medicine 1998, co-editor of two special issues (AIM), co-editor of a referential book N. Lavrač, E. Keravnou, B. Zupan (eds.): Intelligent Data Analysis in Medicine and Pharmacology (Kluwer, 1997).
- IDDM: Integrating Aspects of Data Mining, Decision Support and Meta Learning. Initiator and co-chair of Integration Aspects of Data mining, Decision Support and Meta Learning IDDM2001 (Freiburg) and IDDM2002 (Helsinki) workshops. Co-editor of book D. Mladenič, N. Lavrač, M. Bohanec, S. Moyle (ed.) Data Mining and Decision Support: Integration and Collaboration, Kluwer, 2003.
- Rule Learning (RL). Author of numerous algorithms for rule learning (APRIORI-C), subgroup discovery (SD, CN2-SD, RSD), contrast set mining. Co-author of with J. Fuernkranz, D. Gamberger, N Lavrač: Foundations of Rule Learning, Springer, 2012, and co-author of referential JMLR article on a unifying framework for rule learning, contrast set mining and jumping pattern mining (with P. Kralj Novak and G. Webb). In this area of research I supervised two PhD theses.
- Relational data mining (RDM) and Semantic data mining (SDM). Co-editor of S. Džeroski, N. Lavrač (ed.): Relational Data Mining (Springer, 2001). Invited talks and tutorials on RDM and SDM, including at LPNMR-2015, JCMI-2014, and ECCB-2014. Since 2008 I have been leading the research in the area of Semantic data mining (first tutorial given in 2011 at ECML/PKDD 2011 in Athens). Co-author of algorithms SegMine, SDM-SEGS, SDM-Aleph. In this area of research I supervised three PhD theses.
- SoKD: Service-oriented knowledge discovery. Initiator of development of the Orange4WS tool for creating and executing service-oriented data mining workflows. Initiator of development of ClowdFlows and TextFlows browser-based platforms for data mining and text mining on the cloud, respectively. A first network node ClowdFlows UNISTRA established at Strasburg Uni in 2015. In this area of research I supervised three PhD theses.
- BISON: Bisociative knowledge discovery. I participated in the first EU project in this area, and am coauthor of five chapters in the Springer book on M. Berthold (ed.): Bisociative Knowledge Discovery, published in 2012. In this area of research I supervised one PhD thesis.
- CC: Computational Creativity. I introduced this research area in Slovenia. As local PI, I acquired 1,2 MIO European funding for JSI through four EU projects: MUSE, PROSECCO, WHIM and ConCreTe. In this area of research I am supervising one PhD thesis.