

VESNA MEMIŠEVIĆ: CURRICULUM VITÆ

Ph.D. Candidate, Computer Science Department, University of California, Irvine, CA, 92697-3435, USA

Web Page: <http://www.ics.uci.edu/~vmemisev/>

E-mail: vmemisev@uci.edu

Citizenship: Bosnia and Herzegovina

RESEARCH INTERESTS

Computational and Systems Biology: development and application of graph theoretical, statistical, and machine learning methods for analysis, comparison, and modeling of biological networks, with a particular focus on protein-protein interaction and metabolic networks.

Protein function prediction and disease gene identification: identifying the relationship between the topology of biological networks and biological function and disease.

Network alignment: comparisons of biological networks to transfer biological knowledge between species and gain insights into evolution.

Mathematical modeling of biological systems: identifying well-fitting models for biological networks, developing novel heuristical measures of network topological similarity.

EDUCATION

Ph.D., Computer Science, University of California, Irvine, September 2007– June 2010.

THESIS TITLE: “*Uncovering Biological Knowledge from Network Structure.*”

ADVISOR: Prof. Nataša Pržulj.

CURRENT CGPA: 3.91 out of 4.

B.Sc., Electrical Engineering, University of Sarajevo, Bosnia and Herzegovina, November 2005.

THESIS TITLE: “*Face Recognition based on a small training set: Eigenface vs Backpropagation.*”

ADVISOR: Prof. Zikrija Avdagić.

CGPA: 8.7 out of 10.

AWARDS AND DISTINCTIONS

Opportunity award: **V. Memišević**, A. Ganesan, and N. Pržulj “Utilizing Systems-Level PPI Network Analysis to Visualize the Spatial Dynamics That Control Melanin Pigmentation in Human Cells,” Center for Complex Biological Systems, University of California, Irvine, 2008. Award received: 3-month summer support as a Graduate Student Researcher.

Winner of McGaugh Hall Display Case Design Challenge, Center for Complex Biological Systems, University of California, Irvine, 2008. Award received: \$400.

ICS Fellowship, Donald Bren School of Information and Computer Sciences, University of California, Irvine, 2007–2010.

Semifinals (world’s top 30) of Microsoft Imagine Cup, 2005.

1st Place at the Balkan Case Challenge Finals, Information and Communication Technology Case: Information and Communication System of e-Parliament, 2004–2005.

2nd Place at the Balkan Case Challenge, Bosnia and Herzegovina Sub-competition, Information and Communication Technology Case: Information and Communication System of University of Sarajevo, 2004–2005.

Ministry of Education and Science Scholarship, Sarajevo, Bosnia and Herzegovina, 2003 – 2005.

PROFESSIONAL POSITIONS

2008–present: Graduate Student Researcher, University of California, Irvine.

My research involves development and application of graph theoretical, statistical, and machine learning methods for analysis, comparison, and modeling of biological networks, with a particular focus on protein-protein interaction and metabolic networks. I have shown that topological properties of biological networks could provide insights into protein function, evolution, and disease.

2007–2009: Teaching Assistant and Reader, University of California, Irvine.

I was leading discussion sections, giving office hours, creating, solving, and marking assignments, projects, and exams, and supervising exams for the following courses:

Graduate courses:

CS 230 Distributed Computer Systems, Winter 2008.

Undergraduate courses:

CS 171 Introduction to Artificial Intelligence, Fall 2007, Winter 2009.

CS 161 Design and Analysis of Algorithms: Spring 2008, Fall 2008, Spring 2009.

2005–2007: System analyst and software developer, Sarajevo Osiguranje d.d., Sarajevo, Bosnia and Herzegovina (Insurance Company)

I worked full-time as a system analyst and software developer in the IT department on the following projects:

Life Insurance – Contributed to the design of a new version of Life Insurance software; implemented and tested a new version of Life Insurance software.

Car Insurance – Developed, implemented, and tested Car Insurance Claims report software.

2005: Conference Assistant, United Nations Development Programme (UNDP), Sarajevo, Bosnia and Herzegovina.

CONTRIBUTIONS TO RESEARCH AND DEVELOPMENT

REFEREED JOURNAL PUBLICATIONS:

J-8 **V. Memišević** and N. Pržulj, “Dominating Set in Protein-Protein Interaction Networks Represents Cancer-Related, Pathogen-Interacting, and Functionally Important Genes,” *In preparation*, 2010.

J-7 **V. Memišević** and N. Pržulj, “Evaluating Overall Similarity of Biological Networks via Generalized Graphlet-Based Clustering Spectrum,” *In preparation*, 2010.

J-6 **V. Memišević** and N. Pržulj, “C–GRAAL: Common–Neighbors–Based Global **GRA**ph **AL**ignment of Biological Networks,” *submitted*, 2010.

- J-5 H. Ho, T. Milenković, **V. Memišević**, J. Aruri, N. Pržulj, and A.K. Ganesan, “Protein Interaction Network Topology Uncovers Melanogenesis Regulatory Network Components Within Functional Genomics Datasets,” *submitted*, 2010.
- J-4 **V. Memišević**, T. Milenković, and N. Pržulj, “Complementarity of network and sequence information in homologous proteins,” *Journal of Integrative Bioinformatics*, 7(3):135, 2010.
- J-3 **V. Memišević**, T. Milenković, and N. Pržulj, “An integrative approach to modeling biological networks,” *Journal of Integrative Bioinformatics*, 7(3):120, 2010.
- J-2 O. Kuchaiev, T. Milenković, **V. Memišević**, W. Hayes, N. Pržulj, “Topological network alignment uncovers biological function and phylogeny,” *Journal of the Royal Society Interface*, doi: 10.1098/rsif.2010.0063, 2010.
- J-1 T. Milenković, **V. Memišević**, A.K. Ganesan, and N. Pržulj, “Systems-level cancer gene identification from protein interaction network topology applied to melanogenesis-related functional genomics data,” *Journal of the Royal Society Interface*, 7(44):353-350, 2010 (doi: 10.1098/rsif.2009.0192).

REFEREED CONFERENCE PAPERS:

- C-2 **V. Memišević**, T. Milenković, and N. Pržulj, “Complementarity of network and sequence information in homologous proteins,” *Proceedings of the 6th International Symposium on Integrative Bioinformatics*, 22-24 March 2010, Cambridge, United Kingdom. *Journal version is listed above.*
- C-1 **V. Memišević**, T. Milenković, and N. Pržulj, “An integrative approach to modeling biological networks,” *Proceedings of the 6th International Symposium on Integrative Bioinformatics*, 22-24 March 2010, Cambridge, United Kingdom. *Journal version is listed above.*

CONTRIBUTED TALKS:

- CT-4 **V. Memišević**, T. Milenković, and N. Pržulj, “Complementarity of network and sequence information in homologous proteins,” *Proceedings of the 6th International Symposium on Integrative Bioinformatics*, 22-24 March 2010, Cambridge, United Kingdom.
- CT-3 **V. Memišević**, T. Milenković, and N. Pržulj, “An integrative approach to modeling biological networks,” *Proceedings of the 6th International Symposium on Integrative Bioinformatics*, 22-24 March 2010, Cambridge, United Kingdom.
- CT-2 **V. Memišević**, A.K. Ganesan, and N. Pržulj, “Utilizing Systems-Level PPI Network Analysis to Visualize the Spatial Dynamics That Control Melanin Pigmentation in Human Cells,” *Student Opportunity Award* presentation, *Center for Complex Biological Systems at University of California, Irvine*, Santa Monica, California, March 2009.
- CT-1 O. Kuchaiev, T. Milenković, **V. Memišević**, W. Hayes, N. Pržulj, “Topological network alignment uncovers biological function and phylogeny,” *BioPathways* meeting at *ISMB/ECCB’09*, Stockholm, Sweden, June 2009.

REFEREED POSTERS:

- P-8 T. Milenković, O. Kuchaiev, **V. Memišević**, W.L. Ng, W. Hayes, and N. Pržulj, “Topological network alignment uncovers biological function, evolution, and disease” *ISMB 2010*, Boston, USA, 2010.
- P-7 **V. Memišević**, T. Milenković, and N. Pržulj, “Complementarity of network and sequence information in homologous proteins,” *RECOMB 2010*, Lisbon, Portugal, 2010.

- P-6 O. Kuchaiev, T. Milenković, **V. Memišević**, W. Hayes, and N. Pržulj, “Topological network alignment uncovers biological function and phylogeny,” *RECOMB 2010*, Lisbon, Portugal, 2010.
- P-5 **V. Memišević**, T. Milenković, and N. Pržulj, “An integrative approach to modeling biological networks,” *ICSB 2009*, Stanford, California, 2009.
- P-4 O. Kuchaiev, T. Milenković, **V. Memišević**, W. Hayes, and N. Pržulj, “Topological network alignment uncovers biological function and phylogeny,” *ICSB 2009*, Stanford, California, 2009.
- P-3 T. Milenković, **V. Memišević**, A.K. Ganesan, and N. Pržulj, “Systems-level Cancer Gene Identification from Protein Interaction Network Topology Applied to Melanogenesis-related Interaction Networks,” *ICSB 2009*, Stanford, California, 2009.
- P-2 O. Kuchaiev, T. Milenković, **V. Memišević**, W. Hayes, and N. Pržulj, “Topological network alignment uncovers biological function and phylogeny,” *ISMB/ECCB 2009*, Stockholm, Sweden, 2009.
- P-1 T. Milenković, **V. Memišević**, A.K. Ganesan, and N. Pržulj, “Systems-level Cancer Gene Identification from Protein Interaction Network Topology Applied to Melanogenesis-related Interaction Networks,” *ISMB/ECCB’09*, Stockholm, Sweden, 2009.

ADDITIONAL QUALIFICATIONS

CERTIFICATES: Cisco Networking Academy – CCNA1, CCNA2, CCNA3, and CCNA4, Sarajevo, Bosnia and Herzegovina, 2004–2006.

CERTIFICATES: Project management, business communication, teamwork, leadership and conflict management, marketing and promotion, finances and accounting – Crossroad Workshop: Program for Establishing Companies, Bosnia and Herzegovina, 2005.

CERTIFICATES: Linux administration bases – Linux Users Group of Bosnia and Herzegovina, 2005.

SKILLS

Excellent knowledge of: C, C++, Fox Pro, SQL, Matlab.

Basic knowledge of: R, Python, Java, PHP.

Good knowledge of graphics and image processing and web design: Adobe Photoshop, Adobe Premier, Dreamweaver, Front Page, 3ds Max, Flash, HTML.

Other applications: LaTeX, MS Office.

Operating Systems: Windows, Unix/Linux.

Other: Knowledge of planning, installing and administrating Local Area Networks.

LANGUAGES

Bosnian–Croatian–Serbian (native).

English (excellent).

German (basic).

AFFILIATIONS

International Society for Computational Biology (ISCB).

Institute of Electrical and Electronics Engineers (IEEE).

Society for Industrial and Applied Mathematics (SIAM).

Association for Computing Machinery (ACM).

REFERENCES

Prof. Nataša Pržulj
Lecturer (Assistant Professor)
Department of Computing
Imperial College London
180 Queen's Gate
LONDON, SW7 2AZ, UK
E-mail: natasha@imperial.ac.uk
Home page: <http://www.doc.ic.ac.uk/~natasha/>
Other references available upon request.