

Vedran Miletić

Curriculum vitae

“There is nothing special in the world. Nothing magic. Just physics.” — Chuck Palahniuk, Diary

Skills and Techniques

Core Skills

computer networks	Research experience in field of optical network simulation and network reliability analysis	ns-3 network simulator	Experience with ns-3 Network Simulator model design and implementation
<i>in silico</i> drug design	Research experience in field of computational biochemistry, molecular modelling, and applications to <i>in silico</i> drug design	CP2K molecular simulator	Experience using CP2K molecular dynamics simulator for hybrid quantum and classical mechanics simulations
teaching and lab practice	Experience in teaching and lab practice in computer networks, operating systems, high performance computing, and system administration	open source software development	Experience in open source software development. Have contributed to ns-3, CP2K, GROMACS, \LaTeX Beamer class, Linux kernel, and Moin-Moin

Auxiliary Skills

Linux packaging	Experience with system administration of Linux-based operating systems
virtualization, containers	Experience with packaging software in RPM format for Fedora distribution
mirroring	Experience with virt-manager/QEMU/KVM and VirtualBox virtualization solutions, Docker and systemd-nspawn containers
C++, Python	Experience with managing software mirrors using rsync
debugging	Experience with C++ and Python programming languages
build system	Experience with GCC and Clang compilers, GDB debugger, and Valgrind memory leak detector
VCS	Experience with Makefiles, Waf and CMake build systems, and build configuration in NetBeans and Eclipse IDEs
markup languages	Experience with Git and Mercurial distributed version control systems
languages	Markup languages and document creation: \LaTeX , ConTeXt, pdftk, reStructuredText, LibreOffice, Inkscape, basics of HTML and CSS

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Professional Interests

- optical networks evaluation of optical telecommunication network reliability and availability using simulation methods and optimization of routing and wavelength assignment
- computational chemistry study of reaction dynamics of biomolecules using quantum chemistry models and hybrid quantum and classical mechanics models
- HPC programming models for heterogeneous parallel and distributed computing and applications that run on high performance computers

Experience

Vocational

- 2015 – today **Senior Research and Teaching Assistant**, *Department of Informatics, University of Rijeka, Rijeka, Croatia.*
- Research work
 - Optical network reliability analysis, network modelling and simulation
 - Computational biochemistry, molecular modelling, and *in silico* drug design
 - Applications of high performance computing to e-learning recommender systems
 - Teaching auditory and lab exercises in multiple courses
 - Computer Networks 1 and Computer Networks 2, Network Management
 - Operating Systems 1 and Operating Systems 2, Distributed Systems
 - Parallel Programming on Heterogeneous Systems (supported by NVIDIA)
 - Design of Biologically Active Molecules by Computational Methods
 - Project management and organizational activities
 - Established University CUDA Teaching Center supported by NVIDIA
 - Lead development of lab exercises for Computer Networks 2 course
 - Represented Research and Teaching Assistants in Department Council
 - Promotional activities and public lectures on popular science topics
 - System administration of University of Rijeka software archive mirroring infrastructure and Department of Informatics computational chemistry laboratory
- 2013 – 2014 **Adjunct Teaching Assistant**, *Faculty of Engineering, University of Rijeka, Rijeka, Croatia.*
- Teaching auditory and lab exercises in Computer Networks course
- 2009 – 2015 **Research and Teaching Assistant**, *Department of Informatics, University of Rijeka, Rijeka, Croatia.*

Miscellaneous

- 2009 – 2013 **Coordinator of Subsidiary**, *Croatian Linux Users Group, Zagreb, Croatia.*
- Event organization: public presentations, workshops, Linux Installfests, Document Freedom Day-related activities
 - System administration: Installation and maintenance of an LTSP-powered classroom in Prirodoslovno-grafička škola
 - Website management
- summer 2006 **System Administrator**, *Elmas d.o.o., Rijeka, Croatia.*
- System administration of Windows systems with custom software
- 2006 – 2008 **Student Teaching Assistant**, *Department of Mathematics, University of Rijeka, Rijeka, Croatia.*
- Tuition of undergraduate level courses: Linear Algebra, Mathematical Analysis, Elementary Mathematics, Computer Networks, Operating Systems
 - Teaching workshops on basics of Linux-based operating systems

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Projects

Present Projects

- 2014 – 2016 **The development and commercialization of human DNA methyltransferase Dnmt1 inhibitor with a goal to reprogram functional organization of the genome of human cells**, led by *Željko Svedružić, Ph.D.*, funded by University of Rijeka, reference number 13.11.1.2.04.
- 2014 – 2016 **Recommender system for computer aided learning (ELARS)**, led by *Nataša Hoić-Božić, Ph.D.*, funded by University of Rijeka, reference number 13.13.1.3.05.
- 2014 – 2016 **RFID (Internet of Thing) based animal individual behavior intelligent identification technology and application in traceability (REMALLOY)**, led by *Maja Matetić, Ph.D. and Zetian Fu, Ph.D.*, funded by MZOS.

Past Projects

- 2012 – 2014 **Establishment of CUDA Teaching Center at University of Rijeka**, led by *Vedran Miletić*, funded by NVIDIA.
- 2012 – 2014 **Development of Prototype WDM Network Simulator (PWNS)**, led by *Vedran Miletić*, no external funding.
- 2012 **Development of e-learning materials for Computer Networks 2 course**, led by *Vedran Miletić*, funded by University of Rijeka.
- 2008 – 2010 **Building the future Optical Network in Europe: The e-Photon/ONe Network (BONE)**, led by *BONE Consortium*, funded by FP7.
- 2007 – 2013 **Supporting e-Business by Distance Learning System Based on Dialogue**, led by *Božidar Kovačić, Ph.D.*, funded by MZOS.

References

Željko M. Svedružić, Ph.D.

- Assistant Professor at Department of Biotechnology
- University of Rijeka
- Radmile Matejčić 2
- HR-51000 Rijeka, Croatia
- zeljko.svedruzic@biotech.uniri.hr

Thomas R. Henderson, Ph.D.

- Affiliate Professor at Department of Electrical Engineering
- University of Washington
- M354 EEB, Box 352500
- Seattle, WA 98195, USA
- tomh@tomh.org

Education

- 2009 – 2015 **Ph.D. in Computer Science**, *Faculty of Electrical Engineering and Computing, University of Zagreb, Zagreb, Croatia.*
Focus areas:
 - Optical telecommunication networks
 - Computer network simulation and emulation
 - Communication network availability and reliability evaluation
- 2004 – 2009 **M.Ed. in Mathematics and Informatics**, *Department of Mathematics, Faculty of Arts and Sciences, University of Rijeka, Rijeka, Croatia.*
Focus areas:
 - Real and functional analysis, mathematical foundations of quantum physics
 - Computer networks, system and network administration
 - Free and open source software movement

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Theses

Ph.D. thesis

title *Method for optimizing availability of optical telecommunication network in presence of correlated failures*
supervisors Professor Branko Mikac, Ph.D.
defended 8th June 2015

Master thesis

title *Banach algebras*
supervisors Professor Cvjetan Jardas, Ph.D.
defended 17th March 2009

Languages

English	C1	<i>Using it on a daily basis</i>
Italian	A1	<i>Learned basics in high school</i>
German	A1	<i>Learned basics while working as tourist entertainer</i>

Hobbies

cycling bicycle riding, repair and maintenance are enjoyable and very relaxing
computer playing with computer hardware, diagnosing and repairing broken laptops on a non-regular
hardware basis is fun and gratifying
tourist experience as a tourist entertainer (three seasons: summer 2009, 2010, and 2011) sharpened
entertainment my interpersonal communication skills

Publications

V. Miletić, I. Odorčić, P. Nikolić, and Ž. M. Svedružić, "In silico design of the first dna-independent mechanism-based inhibitor of mammalian dna methyltransferase dnmt1," *PLoS one*, vol. 12, no. 4, p. e0174410, 2017.

P. Nikolić, V. Miletić, I. Odorčić, and Ž. M. Svedružić, "In silico optimization of the first dna-independent mechanism-based inhibitor of mammalian dna methyltransferase dnmt1," *Epi-Informatics: Discovery and Development of Small Molecule Epigenetic Drugs and Probes*, p. 113, 2016.

V. Miletić, T. Šubić, and B. Mikac, "Optimizing maximum shared risk link group disjoint path algorithm using NVIDIA CUDA heterogeneous parallel programming platform," in *Proceedings on the 2014 X International Symposium on Telecommunications (BIHTEL)*, S. Mrdović, Ed., University of Sarajevo. Sarajevo, Bosnia and Herzegovina: IEEE, 2014, pp. 1–6.

V. Miletić, N. Hoić-Božić, and M. Holeko Dlab, "Optimizing ELARS algorithms using NVIDIA CUDA heterogeneous parallel programming platform," in *ICT Innovations 2014, Advances in Intelligent Systems and Computing*, A. M. Bogdanova and D. Gjorgjevikj, Eds., University of Skopje. Berlin, Heidelberg: Springer, 2014, pp. 135–144.

V. Miletić, D. Maniadakis, B. Mikac, and D. Varoutas, "On the influence of the underlying network topology on optical telecommunication network availability under shared risk link group failures," in *Proceedings of the 2014 10th International Conference on the Design of*

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Reliable Communication Networks (DRCN), P. Van Daele, Ed., University of Ghent. Ghent, Belgium: IEEE, 2014, pp. 1–8.

V. Miletić, B. Mikac, and M. Džanko, “Impact evaluation of physical length of shared risk link groups on optical network availability using monte carlo simulation,” in *Proceedings of the 2013 18th European Conference on Networks and Optical Communications (NOC) and 8th Conference on Optical Cabling & Infrastructure (OC&I)*, E. Leitgeb, Ed., Technical University Graz. Graz, Austria: IEEE, 2013, pp. 249–255.

M. Džanko, B. Mikac, and V. Miletić, “Analytical and simulation availability models of ROADM architectures,” in *Proceedings of the 12th International Conference on Telecommunications (ConTEL)*, K. Pripuzić and M. Banek, Eds., University of Zagreb. Zagreb, Croatia: IEEE, 2013, pp. 39–45.

V. Miletić, B. Mikac, and M. Džanko, “Modelling optical network components: A network simulator-based approach,” in *Proceedings on the 2012 IX International Symposium on Telecommunications (BIHTEL)*, S. Mrdović, Ed., University of Sarajevo. Sarajevo, Bosnia and Herzegovina: IEEE, 2012, pp. 1–6.

M. Džanko, B. Mikac, and V. Miletić, “Availability of all-optical switching fabrics used in optical cross-connects,” in *Proceedings on the 35th Convention International MIPRO 2012*, S. Golubić, Ed., MIPRO. Opatija, Croatia: IEEE, 2012, pp. 613–617.

P. Nikolić, V. Miletić, and Ž. M. Svedružić, “DNA methyltransferase DNMT1: regulation of substrate selectivity,” in *6th OEGMBT Annual Meeting 2014 Abstract Book*, A. Khassidov, W. Glaser, and C. Klimek, Eds., Austrian Association of Molecular Life Sciences and Biotechnology. Vienna, Austria: Servicebetrieb ÖH-Uni Graz GmbH, 2014, p. 129.

V. Miletić, “Možemo li predvidjeti (i spriječiti) prekid rada telekomunikacijske mreže?” in *Dan Novih Tehnologija (DaNTe) 2013*, P. Biljanović, Ed., MIPRO. Rijeka, Croatia: IEEE, 2013, p. 1.

V. Miletić, B. Kovačić, and K. Lenković, “PG-Strom: primjena tehnologije paralelnog programiranja NVIDIA CUDA na sustav za upravljanje bazom podataka PostgreSQL,” in *Razvoj poslovnih i informatičkih sustava CASE 25*, M. Polonijo, Ed., CASE. Zagreb, Croatia: CASE, 2013, pp. 53–59.

Public Profiles

- Twitter
- Facebook
- LinkedIn
- Google+
- YouTube
- GitHub
- Skype
- Flickr
- Bitbucket
- Open Hub
- Scholar
- ResearchGate
- Academia.edu
- Speaker Deck

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