

Curriculum Vitae

Dr. Mădălina Eraşcu

LECTURER

West University of Timisoara
Fac. of Math. and Informatics
Department of Computer Science
Blvd. Vasile Parvan 4
300223, Timisoara, Timis, RO
Homepage: <https://merascu.github.io>

RESEARCHER

Institute e-Austria
Blvd. Vasile Parvan 4, room 045B
300223, Timisoara, Timis, RO

Fields of Research Interests

Formal Verification, Automated Theorem Proving, Distributed (Cloud) Computing, Machine Learning, Evolutionary Computing, Symbolic Computation (Computer Algebra)

Education

2012 PhD in Computer Science, Research Institute for Symbolic Computation, Johannes Kepler University, Linz, Austria

PhD thesis: “Computational Logic and Quantifier Elimination Techniques for (Semi-)automatic Static Analysis and Synthesis of Algorithms”

2008 M.Sc. in Computer Science, Johannes Kepler University, Linz, Austria

Master’s thesis: “Automated Formal Static Analysis and Retrieval of Source Code”

2006 B.Sc. in Computer Science, West University, Timisoara, Romania

Bachelor’s thesis: “XML Web Services using ADO.NET”

Career History

Feb 2016 – present Lecturer in Dept. of Computer Science, West University of Timisoara, Romania

Feb 2014 – present Researcher at Institute e-Austria, Timisoara, Romania

Feb 2014 – Feb 2016 Associate Assistant in Dept. of Computer Science, West University of Timisoara, Romania

Feb 2014 – Dec 2014 Postdoctoral Researcher at Dept. of Computer Science, West University of Timisoara, Romania

Jan 2013 – Jan 2014 Postdoctoral Researcher at Research Institute for Symbolic Computation, Johannes Kepler University, Linz, Austria

Oct 2008 – Dec 2012 PhD Researcher at Research Institute for Symbolic Computation, Johannes Kepler University, Linz, Austria

Jan 2011 – Jun 2011 Research Scholar at Dept. of Mathematics, North Carolina State University, Raleigh, USA

BringITon2018 (<http://bringiton.info.uaic.ro>) mention award for *MANeUveR: Management Agency for Cloud Resources*; December 13-14, 2018. BringITon2018 is a workshop for promoting and capitalizing the interaction between computer science in academia and business environment.

UEFISCDI (Romanian Funding Agency for Research) award for the journal article *V Casola, A De Benedictis, M Eracu, J Modic, M Rak. Automatically enforcing security slas in the cloud. IEEE Transactions on Services Computing 10 (5), 741-755* being published in the top 25% journals of the the research field “Computer Science, Information Systems” (<http://webofknowledge.com>).

UEFISCDI (Romanian Funding Agency for Research) award for the journal article *M. Erascu and H. Hong. Real Quantifier Elimination for the Synthesis of Optimal Numerical Algorithms (Case Study: Square Root Computation). J. Symb. Comput., 75:110-126, 2016* being published in the top 50% journals of the the research field “Computer Science, Theory & Methods” (<http://webofknowledge.com>).

DOC-fFORTE-fellowship of the Austrian Academy of Sciences for carrying out research at Research Institute for Symbolic Computation, June 2011 – November 2012. Competitive fellowship: 25 selections out of approx. 90 applications (45 000 EUR).

Marshall Plan Foundation scholarship for research visit at North Carolina State University, USA, January 2011 – June 2011 (8.000 EUR).

Microsoft Research grant for the participation fee and living expenses at the Marktoberdorf Summer School, August 2009.

Upper Austrian Government Scholarship for 1st year of PhD studies, 2008 – 2009.

Research Projects

Director

2017 – 2018 MANeUveR: Management Agency for Cloud Resources. Funding: UEFISCDI. Budget: 475000 RON (approx. 102000 EUR). Competitive selection: 252 financed projects out of 2074 applications.

Member

2016 – 2018 *SC²* Satisfiability Checking and Symbolic Computation - Bridging Two Communities to Solve Real Problems Coordination and Support Activity. Funding: European Commission – H2020-FETOPEN Programme

2016 – 2017 Matlib4Space - Prequalification of a Mathematical Library for Flight Software. Funding: European Space Agency.

2015 – 2017 DICE: Developing Data-Intensive Cloud Applications with Iterative Quality Enhancements. Funding: European Commission – H2020-ICT Programme

2014 – 2016 SPECS: Secure Provisioning of Cloud Services based on SLA Management. Funding: European Commission – FP7-ICT Programme

2014 HOST: High Performance Computing Service Centre. Funding: European Commission – FP7-REGPOT Programme

2013 mpcEnergy: Increasing the Energy Efficiency in Buildings by Energy Management using Refined Process Modeling and Optimization Strategies. (In German: Höhere Energieeffizienz beim Energiemanagement in Gebäuden durch verfeinerte Prozessmodellierung und Optimierungsstrategien). Funding: Upper Austrian Government

2009–2010 Doktoratskolleg *Computational Mathematics* W1214: *Formal Theory and Algorithmics of Non-commutative Gröbner Bases*. Funding: FWF (Austrian Science Fund)

- 2008–2010** Austrian-Hungarian Bilateral Project: *Verified and Certified Software Components*. Funding:³ OeAD GmbH
- 2008–2010** Austrian-Ukrainian Bilateral Project: *Automated Processing of Mathematical Knowledge in Natural Style*. Funding: OeAD GmbH
- 2008–2010** Austrian-Romanian Bilateral Project: *Scientific Computing Platform*. Funding: OeAD GmbH
- 2006–2008** THEOREMA: Proving, Solving and Computing in the Theory of Hilbert Spaces (SFB F1302-3). Funding: FWF (Austrian Science Fund)

Research Visits and Seminar Participation

Research visits in the Software Modeling and Verification Group, Department of Computer Science, RWTH Aachen University, Germany, during 2018-2019. Host: Prof. Dr. Erika Abraham.

Research visit in the Computer Science Department, University of Oxford, UK, during February 2017. Host: Prof. Dr. Daniel Kroening.

Research visits at Dipartimento di Elettronica Informazione e Bioingegneria, Politecnico di Milano, Italy during 2015-2016 in the framework of DICE project. Host: Dr. Matteo Rossi.

Research visits at Institut für Informatik, University Koblenz-Landau, Germany, during 2013 – 2014. Host: Prof. Dr. Viorica Sofronie-Stokkermans

Research visits at North Carolina State University, Raleigh, USA, during 2011 – 2013. Host: Prof. Dr. Hoon Hong

Research visit at Computer Laboratory, University of Cambridge, Cambridge, UK; June 21, 2012. Host: Dr. Grant Olney Passmore

Summer School on Verification Technology, Systems & Applications; Nancy, France, 2009

Summer School on Logics and Languages for Reliability and Security; Marktoberdorf, Germany, 2009

Professional Experience

Teaching

1. At West University of Timisoara, Romania

SS19, SS18, SS17 Formal Languages and Automata Theory (in English), Undergraduate, course and seminar;

WS18/19, WS17/18, SS16 Formal Methods in Software Development (in English and Romanian), Undergraduate, course and lab;

SS16 Compiler Techniques (in Romanian), Undergraduate, course and lab;

SS16 Symbolic Computation (in English and Romanian), Undergraduate, course and lab;

WS14/15, WS15/16, WS16/17 Techniques for scientific work (in English and Romanian), Master, seminar;

WS15/16, WS16/17 Computational Logic (in Romanian), Undergraduate, seminar;

WS18/19, WS17/18, WS15/16, WS16/17 Algorithms and Data Structures I (in Romanian), Undergraduate, lab;

SS15 Data Structures (in English and Romanian), Undergraduate, lab;

WS14/15 Algorithms (in Romanian), Undergraduate, lab;

WS14/15 Programming I (C) (in Romanian), Undergraduate, laboratory

WS14/15 Programming III (Java) (in Romanian), Undergraduate, laboratory

SS14, SS15, SS16 Automated Theorem Proving (in English and Romanian), Master, seminar 4

2. At Universidad de Cantabria, Santander, Spain

2016 One week lecture on quantifier elimination using cylindrical algebraic decomposition in the framework of Erasmus+ Teaching Mobility (Master)

3. At Johannes Kepler University Linz, Austria

2013 Logic-based Program Verification (Master and Undergraduate Course)

4. At Nesin Summer School, Sirince, Turkey

July 30 – August 5, 2012 Automated Theorem Proving (all university levels)

August 29 – September 4, 2011 Cylindrical Algebraic Decomposition (Master and Undergraduate Course)

Advising

Current

BSc level, Jessica Sârbu: thesis topic *Binarized Deep Neural Networks*, 2019-2020

Completed

BSc level, Răzvan Meteş: *Evaluation of a Constrained Optimization Benchmark for Optimization Modulo Theory*, 2018-2019, a paper based on the thesis was accepted at the SMT2019 workshop affiliated to SAT2019

BSc level, Al Asaad Bashar, *Detecting Fake News*, 2017-2018; a paper based on the thesis was accepted at NCA workshop affiliated to SYNASC 2018, IEEE proceedings

BSc level, Iulia Paniti, *Recommendation Engine for Cloud Resources using Metaheuristics*

BSc level, Răzvan-Vlad Popovici, *Recommendation Module for Application Deployment in the Cloud using CSP and SMT Solvers*, 2017-2018

Programming

Innovation Researcher at Continental Automotive Romania SRL

Concept and development of a Sensor Error Model prototype, Patent writer; Sep 2017 - Mar 2019

Mindbreeze Software GmbH, Linz, Austria

Master's thesis, October 2007 – August 2008

S.C. memIQ S.R.L., Timisoara, Romania

Bachelor's thesis, October 2005 – May 2006

Summer internship, May 2005 – September 2005

Software

MANeUveR: Management Agency for Cloud Resources (<https://github.com/Maneuver-PED>)

Professional Activities

Invited Speaker

Working Formal Methods Symposium 2019, September 3-5, 2019, Timisoara, Romania

Workshop on Microservices: Science and Engineering (MSE), affiliated with Technology of Object-Oriented Languages and Systems (TOOLS), 2019

The Sixth International Conference on Mining Intelligence and Knowledge Exploration (MIKE 2018)

Workshop on Microservices: Science and Engineering (MSE), affiliated with Software Technologies: Applications and Foundations (STAF), 2018

Workshop on Microservices: Science and Engineering (MSE), affiliated with 15th International Conference on Software Engineering and Formal Methods (SEFM), 2017

Fourth International Seminar on Program Verification, Automated Debugging and Symbolic Computation; 2015

Int. Conference on Intelligent Computer Mathematics (Calculemus Track); 2015, 2017, 2018

Int. Symposium on Symbolic and Numeric Algorithms for Scientific Computing (Logic and Programming Track); 2015 - 2018

Journal/Book Referee

Reviewer for International Journal of Grid and Utility Computing, 2017

External reviewer for Mathematics in Computer Science (Special Issue SYNASC 2016), 2017

Reviewer for J. of Universal Computer Science, 2013

Int. Symposium on Symbolic Computation in Software Sciences, 2012

J. of Symbolic Computation (Special Issue Workshop on Invariant Generation), 2010

Assistant Editor for <http://www.scholarpedia.org/>, 2010 – 2011

Other Services

In charge with logistics at SYNASC 2014, FLOC 2010, FPSAC 2009, SCCS 2008, RTA 2008, Calculemus 2007, WING 2007

References

Prof. Dr. Bruno Buchberger

Research Institute for Symbolic Computation
Johannes Kepler University
A-4040 Linz, Austria, Europe
email: bruno.buchberger@risc.uni-linz.ac.at

Prof. Dr. Tudor Jebelean

Research Institute for Symbolic Computation
Johannes Kepler University
A-4040 Linz, Austria, Europe
email: tjebelea@risc.jku.at

Prof. Dr. Hoon Hong

Department of Mathematics
North Carolina State University
Box 8205, Raleigh NC 27695, USA
email: hong@ncsu.edu

Prof. Dr. Ali Nesin (teaching reference)

Istanbul Bilgi Üniversitesi

Matematik Bölümü
Kurtulus, Deresi Cad. 47, Dolapdere 34435 Beyoğlu Istanbul, Turkey, Europe
email: anesin@bilgi.edu.tr

Prof. Dr. Wolfgang Schreiner
Research Institute for Symbolic Computation
Johannes Kepler University
A-4040 Linz, Austria, Europe
email: Wolfgang.Schreiner@risc.jku.at

Prof. Dr. Daniela Zaharie
Department of Computer Science
Faculty of Mathematics and Informatics
West University of Timisoara
Blvd. V. Parvan 4, Timisoara 300223, Timis, Romania
email: daniela.zaharie@e-uvt.ro

Last updated: November 14, 2019

Scrisoare de motivare a candidaturii
pentru un mandat în
Consiliul Facultății de Matematică și Informatică

Subsemnata, Mădălina Erașcu, sunt lector la Departamentul de Informatică, Facultatea de Matematică și Informatică. Decizia de a candida la o poziție de membru în Consiliul Facultății de Matematică și Informatică are la bază ca principală motivație dorința de a contribui la dezvoltarea departamentului din care fac parte și implicit a facultății, în plan academic, al activității de cercetare și în relația cu mediul socio-economic. În acest sens:

- Voi continua activitățile de la disciplina Stagiul de Licență care presupune supervizarea și mentorarea studenților de anul 3 (în particular secția engleză) pe întreg anul academic în pregătirea temeinică a lucrării de licență (scrierea lucrării de licență și prezentarea acesteia în cadrul comisiei). Această activitate vine în sprijinul coordonatorului.
- Voi pleda pentru acordarea, în cadrul facultății, a unor burse de cercetare pentru studenții care au capacitate de a se implica în activități de cercetare, sub îndrumarea unui cadru didactic, încă din timpul studiilor de licență. Aceasta s-ar putea face pe perioada lunilor de vară (stagiul de cercetare).
- Doresc să mențin colaborarea cu mediul economic prin activități de proiecte colective, stagii practice, lucrări de licență, dar și să o extind în încercarea de a pune bazele unui program de doctorat în regim part-time facultate + part-time companie. De asemenea, intenționez să propun un curs de antreprenariat/innovare țargetat pentru studenții de la facultatea noastră.
- Intenționez să cresc vizibilitatea internă și internațională a facultății prin (1) sprijinirea cadrelor didactice, îndeosebi a celor tinere, în activități ce țin de cercetare (continuitate în organizarea reading group-ului în metode formale, participare la conferințe și jurnale de top), (2) mentoratul studenților în a urma o carieră universitară sau specializări care să le permită accesul în poziții cheie în industria IT.

În susținerea celor enumerate mai sus menționez: (1) experiența mea de cercetare cu studenții care a avut de suferit din cauza lipsei finanțării studenților, aceștia preferând companiile IT, (2) implicarea mea curentă în colaborarea cu firmele pe domeniul academic, (3) experiența mea internațională.

Informații detaliate se găsesc în CV-ul anexat.

Timișoara, 14.11.2019

Declarație

Subsemnata, Erașcu Mădălina, lector la Departamentul de Informatică, Facultatea de Matematică și Informatică, Universitatea de Vest din Timișoara, declar pe proprie răspundere că nu am fost nici lucrător și nici colaborator al securității.

Timișoara, 14.11.2019