

# Curriculum Vitae

Dr. Mădălina Erăscu

## LECTURER

West University of Timisoara  
Fac. of Math. and Informatics  
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## 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)

## Personal Data

Date of birth: [REDACTED]  
Citizenship: Romanian  
Languages: Romanian (native speaker), English (fluently), Spanish (intermediate), German (intermediate), French (beginner)

## 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<sup>2</sup>  
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

## Honors, Awards, Fellowships

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-fORTE-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)

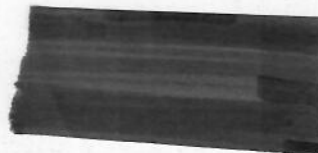
### Member

**2016 – 2018** *SC<sup>2</sup>* 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: 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,<sup>4</sup> 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
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

#### Completed

BSc level, Răzvan Metes: *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 Popo, 2017-2018, *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



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

### *Member of Programming Committees*

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

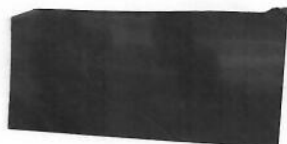
## References

### **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](mailto: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  
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**Prof. Dr. Wolfgang Schreiner**  
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**Prof. Dr. Daniela Zaharie**  
Department of Computer Science  
Faculty of Mathematics and Informatics  
West University of Timisoara  
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## Scrisoare de motivare a candidaturii

pentru un mandat în

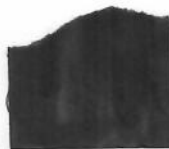
### Consiliul Departamentului de Informatică, Facultatea de Matematică și Informatică

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 Departamentului de Informatică are la bază ca principală motivație dorința de a contribui la dezvoltarea departamentului din care fac parte și implicit a facultății, atât în plan academic, al activității de cercetare, dar și în relația cu mediul socio-economic (industria IT). În acest sens:

- 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.
- Doresc să **mențin** colaborarea cu mediul socio-economic (industria IT) 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.
- **Creșterea vizibilității** interne și internaționale a facultății prin (1) sprijinirea cadrelor didactice în activități ce țin de cercetare (implicare în proiecte, participare la conferințe și jurnale de top), (2) mentoratul studenților în a urma o carieră academică sau specializări care să le permită accesul în poziții cheie în industria IT.

În susținerea celor enumerate mai sus menționez: (1) lipsa implicării studenților în activități/proiecte ale departamentului și orientarea lor către industrie încă din primii ani de studii de licență, (2) implicarea mea în relația cu mediul socio-economic (industria IT) în anul universitar 2018-2019, (3) experiența mea internațională.

Timișoara, 10.10.2019







## **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, 10.10.2019

