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Research Interests

My interests (and work) are highly interdisciplinary. My core research spans various areas of **Theoretical Computer Science**, **Artificial Intelligence**, **Social Simulation** and **Complex Systems**, and includes work in Algorithmic Game Theory, Algorithms, Discrete Models of Complex Systems, Social Networks, Models of Social Dynamics, Multiagent Sytems and Agent Based Modeling, Computational Complexity (in particular proof complexity), Probabilistic and Randomized Methods in Combinatorics.

Education & Certifications

Habilitation to direct Research, Computer Science, West University of Timişoara
(Defense: June 5, 2015)
Thesis Title: *" Complex Systems ideas in Theoretical Computer Science: from Computational Complexity to Social Dynamics"*

Ph.D. in Computer Science **University of Rochester, Rochester, NY**
(Defense: May 28 1999)
Thesis Title: *"Phase transitions in combinatorial optimization problems: towards rigorous results"*
Advisor: *Prof. Mitsunori Ogihara*

M.S., Computer Science **University of Rochester, Rochester, NY**
May 1996

License in Mathematics **University of Bucharest, Bucharest, Romania**
(June 1994. A 5 year program roughly equivalent in breadth to a U.S. M.Sc. It involved Comprehensive Examinations and a Thesis.)
Thesis Title: *"Darboux-type properties in Real Analysis"*
Advisor: *Prof. Solomon Marcus*

Employment History

- **Professor (October '22 – present)**
  University of Bucharest *Bucharest, Romania*
- **Professor (September '18 – September '22)**
  West University of Timişoara *Timişoara, Romania*
- **Associate Professor (September '12 – August '18)**
  West University of Timişoara *Timişoara, Romania*

- **Associate Researcher (March '07 – present)**
  eAustria Research Institute *Timişoara, Romania*

- **Researcher (a.k.a. technical staff member, Sept. '01 – February '07)**
  CCS-5, Basic and Applied Simulation Science,
  Los Alamos National Laboratory *Los Alamos, NM*

- **Postdoctoral fellow (September '99 – August '01)**
  Center for Nonlinear Science,
  Los Alamos National Laboratory *Los Alamos, NM*

- **Summer Instructor, Research & Teaching Assistant, Computer Science Department**
  University of Rochester *Rochester, NY*

Awards, Grants & Achievements

More significant achievements are highlighted by coloring them.

- Have written papers in collaboration with **leading scientists** such as Moshe Vardi (Rice University, Gődel prize 2000, ACM Paris Kanellakis Theory and Practice Award), Mark Jerrum (Queen Mary University, Gődel prize 1996, Fulkerson prize 2006), Cris Moore (Sante Fe Institute, APS, AAAS, AMS Fellow), Samuel Buss (U.C. San Diego, Bolzano Award 2017, Gődel Lecturer 2019)
- Mihai Ghermănescu prize for the research activity, West University of Timişoara, 2016.
- Result in paper [R12] in the paper list below is **included (as a problem) in D. Knuth, "The Art of Computer Programming", vol. 4, prefascicle 0B.**
- **Cited in top venues** such as ACM Symposium on the Theory of Computing (STOC), IEEE Symposium on Foundations of Computer Science (FOCS), ACM-SIAM Symposium on Discrete Algorithms (SODA), National Conference on Artificial Intelligence (AAAI), International Joint Conference on Artificial Intelligence (IJCAI), Physical Review Letters, Journal of Artificial Intelligence Research, Machine Learning, Handbook of Satisfiability, Handbook of Constraint Programming, Random Structures & Algorithms, Combinatorica.
- Los Alamos National Laboratory Achievement Award, August 31 2005.
- P.I., CNCS-IDEI Grant ATCO, "Advanced techniques in optimization and computational complexity", Contract PN-III-P4-ID-PCE-2016-0842, July 2016 – December 2019.
- P.I., CNCS-IDEI Grant STRUCTCOMB, "Structure and computational difficulty in combinatorial optimization: an interdisciplinary approach." Contract IDEI PN-II-ID-PCE-2011-3-0981. May 2012 – December 2015.
- P.I., Marie Curie International reintegration grant IRG-046573, "Phase transitions in Computational Complexity and Formal Verification: Towards Generic and Realistic Approaches", Granted by the E.U. under FP6, March 2007-March 2010.
- P.I., "New Approaches to Fault Tolerance", WSR, Los Alamos National Laboraatory, July 2005. Gave up the PI position as a consequence of returning to Romania.

- Co-P.I., LDRD-ER "Advanced Techniques in Discrete Simulation", Los Alamos National Laboratory, June 2001.
- Director funded Postdoctoral Fellowship, Los Alamos National Laboratory, 1999.
- Member of the research team in various projects, too many to list.
- EPSRC Fellowship, EPSRC/LMS Workshop on Phase transitions in computer science, Liverpool, England, Jan. 1999.
- First prize, Romanian National Mathematical Olympiad, 1988.
- Third prize, Romanian National Mathematical Olympiad, 1982.
- Honorable mentions, Romanian National Mathematical Olympiad, 1984, 1985, 1986, 1987.

Professional Activities

- Editorial Board Member, *Computer Science Review* (Elsevier), from November 21, 2012. Term completed June 14, 2021.
- Recent talk invitations: University of Warsaw (postponed due to COVID-19), conferences SWORDS 2017 (Szeged), DCFS 2016, DACS 2014 (Bucharest).
- PC member for conferences such as AAMAS 2023 (Blue Sky Track), AAMAS 2021, AAAI 2021, SOFSEM 2019, FOIKS 2018, ALGOSENSORS 2017, MCU 2018, 2015, 2011, ICALP 2002, MATCOS 2010,2013,2016, 2019, SYNASC 2008-2022.
- Organizer, Romanian Algorithms Days, June 2021 (online).
- Organizer, computer science workshop, Diaspora Ştiinţificã, 2016.
- Lead organizer of the Workshop on Modeling and Simulation for Large Scale Sociotechnical Systems, part of the LACSI 2005 Conference, Santa Fe NM, October 11-13 2005.
- Coorganizer (with Allon Percus) of the *Phase Transitions in Computer Science* track, American Association for Advancement of Science (AAAS) Meeting, Seattle, WA, 12-16 Feb 2004.
- Coorganizer, CNLS (Center for Nonlinear Science) 23rd Annual Conference, Santa Fe, 12-16 May 2003.
- Coorganizer of the *Workshop on Statistical Physics and Algorithmic Complexity*, September 4–6 2001, Santa Fe, NM.
- Reviewer for various journals and conferences, including *Artificial Intelligence*, *Random Structures and Algorithms*, *Algorithmica*, *RAIRO - Informatique Theorique*, *Wireless and Mobile Computing*, *Theoretical Computer Science*, *Information Processing Letters*, *Journal Of Universal Computer Science*, *International Journal of Foundations of Computer Science*, *Discrete Applied Mathematics*, *Discrete Mathematics*, *Chaos*, *Real Analysis Exchange*.
- Reviewer for conferences such as *ICALP 2019, WAOA 2019, CIE 2019, FAW 2017, CIE 2015, MFCS 2011, CSR 2009, LFCS 2009, JACIL-UNIF 2009, INFOCOM 2007, SAT 2006, MOBIHOC 2006, ICDCS 2005, CCC 1999, MFCS 1999, STACS 1998, CCC 1996, ISAAC 1996, ICCI 1996.*
- Member of various professional societies, including Association for Computing Machinery (ACM), the ACM Special Interest Group on Automata and ComputabilityTheory (SIGACT) and the Computability in Europe (CIE) association.

Service

West University of Timişoara

- Director, Ph.D. School in Computer Science, 2016 - July 2022.
- Member, Computer Science comission, CNCS (Romanian equivalent of NSF), 2012-2014 and 2020-present.

Los Alamos National Laboratory

- LDRD ER Committee Member, Computer Science and Engineering, 2006-2007.
- LDRD ER Committee Member, Computer Science and Engineering, 2002 - 2004.
- L.A.N.L.- University of California Panel on research policy, 2001- 2003.
- CNLS Forum Presentation, September 2000.
- CNLS Research Highlights, June/July 2000.

University of Rochester

- student member of the Admissions Committee, 1995-1999,
- student member of the Comprehensive Examinations Committee, 1995-1999.
- assisted Prof. Lane Hemaspaandra in managing the "Computational Complexity" section of the ACM Computer Research Repository (CORR).

Computing Experience

- **Software experience**: C/C++, Python, R, Mathematica, Java, Lisp, Go, various PC and UNIX/Solaris/Linux software.
- **Software engineering knowledge/experience**: UML and UML tools (Metamill, Enterprise Architect), unit-testing (test-driven design), design patterns. Practical experience in a significant-scale (scientific) software project involving these techniques.

Languages

Romanian (native), English (excellent), French (very good), Spanish (fair).