

Florentin Ipatе

Curriculum Vitae et Studiorum

Faculty of Mathematics and Computer Science, University of Bucharest

Str. Academiei nr. 14, 010014, Bucharest, Romania

www.ifsoft.ro/~florentin.ipate · florentin.ipate@unibuc.ro

ORCID 0000-0001-8777-3425 · [Google Scholar](#) · [DBLP](#)

ABOUT

Full professor in the Computer Science Department at the University of Bucharest. Research focus on theoretical computer science and software engineering, particularly model-based testing, membrane computing, and spiking neural (P) systems. Recent research extends towards bridging these areas with Artificial Intelligence — including mixed AI + membrane computing and search-based testing enhanced by machine learning for autonomous robotic systems.

Career spans academic research, collaborative projects, and applied software development, including participation in European and national research projects and contribution to the development of industrial-strength verification and testing tools. Owner and managing director of the software company IF Soft for over 20 years.

EDUCATION

1995 PhD in Computer Science, *University of Sheffield*. Supervisor: Professor Mike Holcombe. Thesis: “*Theory of X-machines with Applications in Specification and Testing*” — nominated for the Distinguished Dissertation Award in Computer Science in the UK.

1992 MSc in Software Systems Technology (with Distinction), *University of Sheffield*.

1991 MEng in Computer Science and Automatic Control, “*Politehnica*” *University of Bucharest*.

ACADEMIC POSITIONS

2012–Present Professor of Computer Science, *University of Bucharest*, Faculty of Mathematics and Informatics.

2001–2012 Professor (2002–2012) and Associate Professor (2001–2002) of Computer Science, *University of Pitești*, Faculty of Mathematics and Informatics.

1996–2001 Associate Professor (1998–2001) and Lecturer (1996–1998) in Computer Science, *Romanian-American University*, Faculty of Informatics for Economics.

1995–1996 Postdoctoral Research Grant holder, *Fretwell-Downing Data Systems & University of Sheffield*.

RESEARCH INTERESTS

— Software Testing: Model-based Testing, Search-based Software Testing, including ML-enhanced testing for autonomous robotic systems

— Membrane Computing: Kernel P Systems, Spiking Neural P Systems and their applications in Software Engineering, cybersecurity and biology

— Mixed AI + Membrane Computing approaches

— Formal Modelling and Verification methods for Software Engineering

RESEARCH GRANTS

2017–2019 **MACPS** — PCE, CNCS-UEFISCDI (*Principal Investigator*)

2012–2016 **MuVeT** — PCE, CNCS-UEFISCDI (*Principal Investigator*)

2010–2012 **Deploy** — ICT EU FP7 (*Team Leader*)

2009–2011 **EvoMT** — PCE, CNCS-UEFISCDI (*Principal Investigator*)

2005–2008 **TARD** — Excellence in Research, Ministry of Education (*Senior researcher*)

2005–2007 **EMANICS** — EU FP6 (*Senior researcher*)

1996–1999 **GAIA** — ACTS EU FP4 (*Team Leader*)

PROFESSIONAL ACTIVITIES

— Editor of the *Journal of Membrane Computing* (Springer).

— Steering Committee member of the Conference on Membrane Computing and member of the Bulletin Committee of the International Membrane Computing Society.

— PC member of several editions of ICST (IEEE International Conference on Software Testing, Verification and Validation), SEFM (International Conference on Software Engineering and Formal Methods), CMC (Conference on Membrane Computing), BIC-TA (International Conference on Bio-inspired Computing: Theories and Applications), A-MOST (Advances in Model Based Testing) and VALID (International Conference on Advances in System Testing and Validation Lifecycle).

— General chair of ICTAC (International Colloquium on Theoretical Aspects of Computing), 2014.

— Member of the CNATDCU Informatics Panel (2011–2012, 2016–2020, 2024–Present).

— Member of the CNCS Informatics Panel (2012–2013, 2020–2022).

PHD STUDENTS (COMPLETED)

2025 Mihail Plesa

2020 Ștefania Loredana Niță

2020 Ana Cristina Iova (Țurlea)

2019 Laurențiu Mierlă — *joint supervision with prof. Tudor Bălănescu*

2018 Ionuț Mihai Niculescu — *joint supervision with prof. Tudor Bălănescu*

2013 Adrian Țurcanu

2011 Raluca Lefticaru

AWARDS

2010 **Honorary Invited Professor** — Xihua University, Chengdu, China.

2002 **In Hoc Signo Vincis Prize** — for research and publications, CNCSIS.

2000 **COPYRO Publishing Prize** — for Computer Science.

1992–1995 **PhD Research Scholarship** — University of Sheffield.

PUBLICATIONS

Journal Publications

1. M. Gheorghe, **F. Ipate**, S. Konur, M. I. Niculescu, G. Zhang: P Systems and X-Machines – A Survey, *International Journal of Unconventional Computing*, in press, 2026.
2. M. Gheorghe, **F. Ipate**, K. Kannan, S. Konur, L. Kuppusamy, R. Lefticaru, A. Mahendran, M. I. Niculescu: Spiking neural P systems and kernel P systems, *Journal of Membrane Computing*, 7(4): 437-459, 2025.
3. M.-I. Plesa, M. Gheorghe, **F. Ipate**: Neural Key Agreement Protocol with Extended Security, *Applied Sciences*, 15(23): 12746, 2025.
4. M.-I. Plesa, M. Gheorghe, **F. Ipate**, G. Zhang: A Federated Learning Protocol for Spiking Neural Membrane Systems, *International Journal of Neural Systems*, 34(12): 2450062, 2024.
5. M.-I. Plesa, M. Gheorghe, **F. Ipate**, G. Zhang: Applications of spiking neural P systems in cybersecurity, *Journal of Membrane Computing*, 6(4): 310–317, 2024.
6. R. T. Bobe, M. Gheorghe, **F. Ipate**, I.-M. Niculescu: A test-driven methodology for designing robot controllers and simulators using enzymatic numerical P system models, *Simulation: Transactions of the Society for Modeling and Simulation International*, 2024.
7. **F. Ipate**, I.-M. Niculescu, R. Lefticaru, S. Konur, M. Gheorghe: A model learning based testing approach for kernel P systems, *Theoretical Computer Science*, 965, 113975, 2023.
8. M.-I. Plesa, M. Gheorghe, **F. Ipate**, G. Zhang: A key agreement protocol based on spiking neural P systems with anti-spikes, *J. Membr. Comput.*, 4(4): 341-351, 2022.
9. **F. Ipate**, M. Gheorghe: A model learning based testing approach for spiking neural P systems, *Theoretical Computer Science*, 924, 1-16, 2022.
10. **F. Ipate**, M. Gheorghe, R. Lefticaru: Fundamental results for learning deterministic extended finite state machines from queries, *Theoretical Computer Science*, 862, 160-173, 2021.
11. S. Konur, L. Mierla, **F. Ipate**, M. Gheorghe: kworkbench: A software suit for membrane systems, *SoftwareX*, 11: 100407, 2020.
12. A. Turlea, M. Gheorghe, **F. Ipate**, S. Konur: Search-based testing in membrane computing, *J. Membr. Comput.*, 1(4): 241-250, 2019.
13. M. Gheorghe, R. Ceterchi, **F. Ipate**, S. Konur, R. Lefticaru: Kernel P Systems: From Modelling to Verification and Testing, *Theoretical Computer Science*, 724, 45-60, 2018.
14. T. Stoenescu, A. Stefanescu, S. Predut, **F. Ipate**: Binary Analysis based on Symbolic Execution and Reversible x86 Instructions, *Fundamenta Informaticae*, 153(1-2), 105-124, 2017.
15. S. N. Krishna, M. Gheorghe, E. Cshaj-Varju, **F. Ipate**, R. Ceterchi: Further Results on Generalised Communicating P Systems, *Theoretical Computer Science*, 701, 146-160, 2017.
16. M. Gheorghe, **F. Ipate**, S. Konur: Testing Based on Identifiable P Systems Using Cover Automata and X-Machines, *Information Sciences*, 372, 565-578, 2016.
17. **F. Ipate**, D. Dranidis: A unified integration and component testing approach from deterministic stream X-machine specifications, *Formal Aspects of Computing*, 28(1), 1-20, 2016.
18. X. Wang, G. Zhang, F. Neri, T. Jiang, J. Zhao, M. Gheorghe, **F. Ipate**, R. Lefticaru: Design and implementation of membrane controllers for trajectory tracking of nonholonomic wheeled mobile robots, *Integrated Computer-Aided Engineering*, 23(1), 15-30, 2016.
19. X. Wang, G. Zhang, J. Zhao, H. Rong, **F. Ipate**, R. Lefticaru: A Modified Membrane-Inspired Algorithm Based on Particle Swarm Optimization for Mobile Robot Path Planning, *International Journal of Computers, Communications and Control*, 10(5), 732-745, 2015.
20. S. Konur, M. Gheorghe, C. Dragomir, L. Mierla, **F. Ipate**, N. Krasnogor: Qualitative and Quantitative Analysis of Systems and Synthetic Biology Constructs using P Systems, *ACS Synthetic Biology*, 4(1), 83-92, 2015.
21. **F. Ipate**, A. Stefanescu, I. Dinca: Model Learning and Test Generation Using Cover Automata, *The Computer Journal*, 58(5), 1140-1159, 2015.
22. G. Zhang, C. Liu, M. Gheorghe, **F. Ipate**, X. Wang: QEAM: An Approximate Algorithm Using P Systems with Active Membranes, *International Journal of Computers, Communications and Control*, 10(2), 263-279, 2015.
23. M. Gheorghe, **F. Ipate**, S. Konur: Solutions to the Subset Sum and Partition Problems Using Kernel P Systems, *Annals of Bucharest University, Computer Science*, Vol. LXII Nr. 2, 37-46, 2015.
24. S. Konur, M. Gheorghe, C. Dragomir, **F. Ipate**, N. Krasnogor: Conventional Verification for Unconventional Computing: a Genetic XOR Gate Example, *Fundamenta Informaticae*, 134(1-2), 97-110, 2014.
25. I.M. Niculescu, M. Gheorghe, **F. Ipate**, A. Stefanescu: From Kernel P Systems to X-Machines and FLAME, *Journal of Automata, Languages and Combinatorics*, 19(1-4), 239-250, 2014.
26. M. Gheorghe, **F. Ipate**, R. Lefticaru, M. J. Perez-Jimenez, A. Turcanu, L. V. Cabrera, M. Garcia-Quismondo, Laurentiu Mierla: 3-Col problem modelling using simple kernel P systems, *International Journal of Computer Mathematics*, 90(4), 816-830, 2013.
27. A. Ciobanu, **F. Ipate**: P System Testing with Parallel Simulators - a Survey, *Scalable Computing: Practice and Experience* 14(3), 2013.
28. F. Zhou, G. Zhang, X. Huang, J. Cheng, M. Gheorghe, **F. Ipate**, R. Lefticaru: A Novel Membrane Algorithm Based on Particle Swarm Optimization for Solving Broadcasting Problems, *Journal of Universal Computer Science*, 18(13), 1821-1841, 2012.
29. **F. Ipate**: Learning Finite Cover Automata from Queries, *Journal of Computer and System Sciences*, 78(1): 221-244, 2012.
30. **F. Ipate**, R. Lefticaru, C. Tudose: Formal verification of P systems using SPIN, *International Journal of Foundations of Computer Science*, 22(1), 133-142, 2011.

31. R. Lefticaru, M. Gheorghe, **F. Ipate**: An empirical evaluation of P system testing techniques, *Natural Computing*, 10(1), 151-165, 2011.
32. R. Lefticaru, C. Tudose, **F. Ipate**: Towards Automated Verification of P Systems Using Spin, *International Journal of Natural Computing Research*, 2(3), 1-12, 2011.
33. **F. Ipate**, M. Gheorghe, R. Lefticaru: Test generation from P systems using model checking, *Journal of Logic and Algebraic Programming*, 79 (6), 350-362, 2010.
34. **F. Ipate**: Bounded Sequence Testing from Deterministic Finite State Machines, *Theoretical Computer Science*, 411(16-18), 1770-1784, 2010.
35. R. Lefticaru, **F. Ipate**, M. Gheorghe: Model Checking Based Test Generation from P Systems Using P-Lingua, *Romanian Journal of Information Science and Technology*, 13(2), 153-168, 2010.
36. **F. Ipate**, M. Gheorghe: Finite state based testing of P systems, *Natural Computing*, 8(4), 833-846, 2009.
37. **F. Ipate**: Test Selection for Hierarchical and Communicating Finite State Machines, *The Computer Journal*, 52(3), 334-347, 2009.
38. **F. Ipate**, M. Gheorghe: Mutation Based Testing of P Systems, *International Journal of Computers, Communication and Control*, IV(3), 2009.
39. **F. Ipate**, M. Gheorghe: Testing Non-deterministic Stream X-machine Models and P systems, MecBic 2008, in *Electronic Notes in Theoretical Computer Science*, 227, 113-126, 2009.
40. T. Balanescu, M. Gheorghe, **F. Ipate**: Combined power of X-machines and P systems, *Annals of Bucharest University, Computer Science*, Vol. LVIII, 35-48, 2009.
41. **F. Ipate**, M. Holcombe: Testing data processing-oriented systems from stream X-machine models, *Theoretical Computer Science*, 403(2-3), 176-191, 2008.
42. R. Hierons, **F. Ipate**: Testing a deterministic implementation against a non-controllable non-deterministic stream X-machine, *Formal Aspects of Computing*, 20: 597-617, 2008.
43. **F. Ipate**, R. Lefticaru: Genetic Model based Testing: a Framework and a Case Study, *Romanian Journal of Information Science and Technology*, 11(3), 209-227, 2008.
44. **F. Ipate**: Testing against a Non-Controllable Stream X-machine using State Counting, *Theoretical Computer Science*, 353(1-3), 291-316, 2006.
45. K. Bogdanov, M. Holcombe, **F. Ipate**, L. Seed, S. Vanak: Testing Methods for X-machines: a review, *Formal Aspects of Computing*, 18(1), 3-30, 2006.
46. **F. Ipate**: On the Minimality of Finite Automata and Stream X-machines for Finite Languages, *The Computer Journal*, 48(2), 157-167, 2005.
47. **F. Ipate**, T. Balanescu: Refinement in Finite State Machine Testing, *Fundamenta Informaticae*, 64(1-4), 191-203, 2005.
48. **F. Ipate**, M. Holcombe: Complete Testing from a Stream X-machine Specification, *Fundamenta Informaticae*, 64(1-4), 205-216, 2005.
49. **F. Ipate**: Complete Deterministic Stream X-machine Testing, *Formal Aspects of Computing*, 16(4), 374-386, 2004.
50. T. Balanescu, **F. Ipate**: The Wp method for Partially Specified Deterministic Finite State Machines, *Annals of Bucharest University, Computer Science*, LIII(1), 47-60, 2004.
51. **F. Ipate**: On the Minimality of Stream X-Machines, *The Computer Journal*, 46(3), 295-306, 2003.
52. **F. Ipate**, M. Gheorghe, M. Holcombe: Testing (Stream) X-machines, *Applicable Algebra in Engineering, Communication and Computing*, 14(3), 217-237, 2003.
53. T. Balanescu, M. Gheorghe, **F. Ipate**, M. Holcombe: Formal Black Box Testing for Partially Specified Deterministic Finite State Machines, *Foundations of Computing and Decision Sciences*, 28 (1), 17-28, 2003.
54. **F. Ipate**, T. Balanescu, P. Kefalas, M. Holcombe, G. Eleftheraki: A new model of Communicating Stream X-machine Systems, *Romanian Journal of Information Science and Technology*, 6(1-2), 165-184, 2003.
55. **F. Ipate**, M. Holcombe: Testing Conditions for Communicating Stream X-machine Systems, *Formal Aspects of Computing*, 13(6), 431-446, 2002.
56. **F. Ipate**, M. Holcombe: An Integrated Refinement and Testing Method for Stream X-Machines, *Applicable Algebra in Engineering, Communication and Computing*, 13(2), 67-91, 2002.
57. J. Aguado, T. Balanescu, T. Cowling, M. Gheorghe, M. Holcombe, **F. Ipate**: P Systems with Replicated Rewriting and Stream X-machines (Eilenberg machines), *Fundamenta Informaticae*, 49, 17-33, 2002.
58. **F. Ipate**, M. Gheorghe, M. Holcombe, T. Balanescu: A theory of testing for non-deterministic X-machines, *Romanian Journal of Information Science and Technology*, 5(1-2), Romanian Academy, 137-154, 2002.
59. **F. Ipate**, M. Holcombe: Generating test sets from non-deterministic stream X-machines, *Formal Aspects of Computing*, 12(6), 443-458, 2000.
60. **F. Ipate**, M. Holcombe: A method for refining and testing generalised machine specifications, *International Journal of Computer Mathematics*, 68, 197-219, 1998.
61. **F. Ipate**, M. Holcombe: Specification and testing using generalized machines: a presentation and a case study, *Software Testing, Verification and Reliability*, 8, 61-81, 1998.
62. **F. Ipate**: X-machines: a specification method for software systems (in Romanian), *Informatica Economica*, II(6), Bucharest, 41-46, 1998.
63. **F. Ipate**, M. Holcombe: An integration testing method that is proved to find all faults, *International Journal of Computer Mathematics*, 63, 159-178, 1997.
64. **F. Ipate**, M. Holcombe: Another look at computability, *Informatica*, 20 (3), 359-372, 1996.
65. M. Fairtlough, M. Holcombe, **F. Ipate**, C. Jordan, G. Laycock, Z. Duan: Using an X-machine to model a video cassette recorder, *Current issues in electronic modelling*, 3, 141-161, 1995.

Refereed Conferences

1. R. T. Bobe, M. Gheorghe, **F. Ipate**, I.-M. Niculescu: Test-Driven Simulation of Robots Controlled by Enzymatic Numerical P Systems Models, *Simulation Tools and Techniques (SIMUtools 2023)*, Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, 519: 56-69, 2024.
2. M.-I. Plesa, M. Gheorghe, **F. Ipate**: Private Inference on Layered Spiking Neural P Systems, *Bioinspired Systems for Translational Applications: From Robotics to Social Engineering (IWINAC 2024)*, Lecture Notes in Computer Science, 14675, 163-172, 2024.
3. R. T. Bobe, **F. Ipate**, I.-M. Niculescu: Modelling and Search-Based Testing of Robot Controllers Using Enzymatic Numerical P Systems, Working Formal Methods (FROM 2023), *Electronic Proceedings in Theoretical Computer Science*, 389: 1-10, 2023.

4. M.-I. Plesa, M. Gheorghe, **F. Ipate**: Privacy-preserving Linear Computations in Spiking Neural P Systems, Working Formal Methods (FROM 2023), *Electronic Proceedings in Theoretical Computer Science*, 389: 110-119, 2023.
5. A. Turcanu, **F. Ipate**: Using the Rodin Platform as a Programming Tool, *Proceedings of International Conference on Information Technology and Applications*, LNNS volume 350, 505–513, 2021.
6. A. Turlea, **F. Ipate**, R. Lefticaru: Generating Complex Paths for Testing from an EFSM, *QRS Companion*, 242-249, 2018.
7. M. Gheorghe, **F. Ipate**, R. Lefticaru, A. Turlea: Testing Identifiable Kernel P Systems Using an X-Machine Approach, *Int. Conf. on Membrane*, 142-159, 2018.
8. S.-N. Predut, **F. Ipate**, M. Gheorghe, F. Campean: Formal Modelling of Cruise Control System Using Event-B and Rodin Platform, *IHPCC/SmartCity/DSS*, 1541-1546, 2018.
9. A. Turlea, **F. Ipate**, R. Lefticaru: A Test Suite Generation Approach Based on EFSMs Using a Multi-objective Genetic Algorithm, *SYNASC*, 153-160, 2017.
10. R. Lefticaru, M. E. Bakir, S. Konur, M. Stannett, **F. Ipate**: Modelling and Validating an Engineering Application in Kernel P Systems, *Int. Conf. on Membrane Computing 2017*, LNCS, 183-195, 2017.
11. M. Gheorghe, R. Ceterchi, **F. Ipate**, S. Konur: Kernel P Systems Modelling, Testing and Verification - Sorting Case Study, *Int. Conf. on Membrane Computing 2016*, LNCS, 233-250, 2016.
12. T. Stoenescu, A. Stefanescu, S. Predut, **F. Ipate**: RIVER: A Binary Analysis Framework using Symbolic Execution and Reversible x86 Instructions, *21st International Symposium on Formal Methods (FM 2016)*, LNCS, Springer, 779-785, 2016.
13. A. Turlea, **F. Ipate**, R. Lefticaru: A Hybrid Test Generation Approach based on Extended Finite State Machines, in *International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC 2016)*, 173-180, 2016.
14. M. Gheorghe, S. Konur, **F. Ipate**, L. Mierla, M. E. Bakir, M. Stannett: An Integrated Model Checking Toolset for Kernel P Systems, *Int. Conf. on Membrane Computing 2015*, LNCS, 153-170, 2015.
15. S. Konur, M. Kiran, M. Gheorghe, M. Burkitt, **F. Ipate**: Agent-Based High-Performance Simulation of Biological Systems on the GPU, *17th IEEE International Conference on High Performance Computing and Communications, 7th IEEE International Symposium on Cyberspace Safety and Security and 12th IEEE International Conference on Embedded Software and Systems*, HPCC/CSS/ICES 2015, 84-89, 2015.
16. M. Gheorghe, **F. Ipate**, L. Mierla, S. Konur: kPWorkbench: A Software Framework for Kernel P Systems, *BWMC 2015*, 179-194, 2015.
17. M. E. Bakir, **F. Ipate**, S. Konur, L. Mierla, I. Niculescu: Extended Simulation and Verification Platform for Kernel P Systems, *Int. Conf. on Membrane Computing 2014*, LNCS, 158-178, 2014.
18. I. Sakellariou, O. Kurdi, M. Gheorghe, D. Romano, P. Kefalas, **F. Ipate**, I.M. Niculescu: Crowd formal modelling and simulation: The Sa'yee ritual, *UKCI 2014*, 1-8, 2014.
19. M. E. Bakir, S. Konur, M. Gheorghe, I. Niculescu, **F. Ipate**: High Performance Simulations of Kernel P Systems, *2014 IEEE International Conference on High Performance Computing and Communications, 6th IEEE International Symposium on Cyberspace Safety and Security, 11th IEEE International Conference on Embedded Software and Systems*, HPCC/CSS/ICES 2014, 409-412, 2014.
20. **F. Ipate**, R. Lefticaru, L. Mierla, L. Valencia-Cabrera, H. Han, G. Zhang, C. Dragomir, M. J. Perez-Jimenez, M. Gheorghe: Kernel P Systems: Applications and Implementations, *BIC-TA 2013*, 1081-1089, 2013.
21. M. Gheorghe, **F. Ipate**, C. Dragomir, L. Mierla, L. Valencia-Cabrera, Manuel Garcia-Quismondo, M. J. Perez-Jimenez: Kernel P Systems - Version 1, *BWMC 2013*, 97-124, 2013.
22. M. Gheorghe, **F. Ipate**: A Kernel P Systems Survey, *Int. Conf. on Membrane Computing 2013*, LNCS 8340: 1-9, 2013.
23. A. Ciobanu, **F. Ipate**: Implementation of P Systems by Using Big Data Technologies, *Int. Conf. on Membrane Computing 2013*, LNCS 8340: 117-137, 2013.
24. C. Dragomir, **F. Ipate**, S. Konur, R. Lefticaru, L. Mierla: Model Checking Kernel P Systems, *Int. Conf. on Membrane Computing 2013*, LNCS 8340: 151-172, 2013.
25. R. Nicolescu, **F. Ipate**, H. Wu: Programming P Systems with Complex Objects, *Int. Conf. on Membrane Computing 2013*, LNCS 8340: 280-300, 2013.
26. A. Turcanu, **F. Ipate**: Computational properties of two P systems solving the 3-colouring problem, in *14th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC 2012)*, 62-69, 2012.
27. R. Lefticaru, **F. Ipate**: An improved test generation approach from extended finite state machines using genetic algorithms, in *SEFM 2012 (International Conference on Software Engineering and Formal Methods)*, Lecture Notes in Computer Science 7504 Springer, 293-307, 2012.
28. D. Dranidis, K. Bratanis, **F. Ipate**: JSXM: a tool for automated test generation, in *SEFM 2012 (International Conference on Software Engineering and Formal Methods)*, Lecture Notes in Computer Science 7504 Springer, 352-366, 2012.
29. **F. Ipate**, Ciprian Dragomir, R. Lefticaru, Laurentiu Mierla, M. J. Perez-Jimenez: Using a Kernel P system to solve the 3-Col problem, in *Int. Conf. on Membrane Computing 2012 (CMC 2012)*, Proceedings, 243-258, 2012.
30. I. Dinca, **F. Ipate**, A. Stefanescu: Model learning and test generation for Event-B decomposition, *International Symposium on Leveraging Applications, in ISoLA 2012 (5th International Symposium On Leveraging Applications of Formal Methods, Verification and Validation)*, Lecture Notes in Computer Science 7609 Springer, 539-553, 2012.
31. M. Gheorghe, **F. Ipate**, C. Dragomir: A Kernel P System, *BWMC12*, Proceedings, 153-170, 2012.
32. I. Dinca, **F. Ipate**, L. Mierla, A. Stefanescu: Learn and Test for Event-B - A Rodin Plugin, in *ABZ 2012*, 361-364, 2012.
33. **F. Ipate**, R. Lefticaru, I. Perez-Hurtado, M. J. Perez-Jimenez, C. Tudose: Formal Verification of P Systems with Active Membranes through Model Checking, in *Int. Conf. on Membrane Computing 2011 (CMC 2011)*, Lecture Notes in Computer Science 7184 Springer, 215-225, 2011.
34. X. Huang, G. Zhang, H. Rong, **F. Ipate**: Evolutionary Design of a Simple Membrane System, in *Int. Conf. on Membrane Computing 2011 (CMC 2011)*, Lecture Notes in Computer Science 7184 Springer, 203-214, 2011.
35. C. Tudose, R. Lefticaru, **F. Ipate**: Using Genetic Algorithms and Model Checking for P Systems Automatic Design. Nature Inspired Cooperative Strategies for Optimization, in *NICSO 2011*, Studies in Computational Intelligence 387 Springer 285-302, 2011.
36. I. Dinca, A. Stefanescu, **F. Ipate**, R. Lefticaru, C. Tudose: Test Data Generation for Event-B Models using Genetic Algorithms, in *Proc. of 2nd International Conference on Software Engineering and Computer Systems (ICSECS'11)*, CCIS Series, vol. 181, pp. 76-90. Springer, 2011.
37. A. Stefanescu, **F. Ipate**, R. Lefticaru, C. Tudose: Towards Search-Based Testing for Event-B Models, in *Proc. of 4th International Workshop on Search-Based Software Testing (SBST'11)*, from ICSTW'11, pp.194-197. IEEE Computer Society, 2011.

38. **F. Ipate**, R. Nicolescu, I.M. Niculescu, C. Stefan: Synchronization of P Systems with Simplex Channels, *5th Workshop on Membrane Computing and Biologically Inspired Process Calculi (MecBic 2011)*, 57-72.
39. **F. Ipate**, A. Turcanu: Modeling, Verification and Testing of P Systems Using Rodin and ProB, in *Ninth Brainstorming Week on Membrane Computing*, 209-220, Fenix Editora, Sevilla, 2011.
40. M. Gheorghe, **F. Ipate**, R. Lefticaru, C. Dragomir: An integrated approach to P systems formal verification, in *Int. Conf. on Membrane Computing (CMC 2010)*, Jena, Germany, August 24-27, 2010. Revised Selected Papers, LNCS 6501 Springer, 226-239, 2011.
41. M. Gheorghe, **F. Ipate**: Testing based on P systems - an overview, in *Int. Conf. on Membrane Computing (CMC 2010)*, Jena, Germany, August 24-27, 2010. Revised Selected Papers, LNCS 6501 Springer, 3-6, 2011.
42. A. Ciobanu, R. Lefticaru, I. M. Niculescu, **F. Ipate**: Tools for P system testing, in *Proceedings of the Eleventh International Conference on Membrane Computing (CMC11)*, Jena, Germany, August 2010, pp. 451-454, ProBusiness Verlag, Berlin, 2010.
43. F. Zhou, G. Zhang, H. Rong, M. Gheorghe, J. Cheng, **F. Ipate**, R. Lefticaru: A particle swarm optimization based on P systems, in *Proceedings of the Sixth International Conference on Natural Computation (ICNC'10)*, Yantai, Shandong, China, August, IEEE Press, 3003-3007, 2010.
44. M. Gheorghe, **F. Ipate**, C. Dragomir: Formal Verification and Testing Based on P Systems, in *Tenth Workshop on Membrane Computing (WMC10)*, Curtea de Arges, Romania, August 2009, 33-34. Selected, revised papers, in G. Paun et al. (Eds.), LNCS 5957, 54-65, Springer, 2010.
45. R. Lefticaru, **F. Ipate**, M. Gheorghe, G. Zhang: Tuning P Systems for Solving the Broadcasting Problem, in *Tenth Workshop on Membrane Computing (WMC10)*, Curtea de Arges, Romania, August 2009, 337-354. Selected, revised papers, in G. Paun et al. (Eds.), LNCS 5957, pp. 354-370, Springer, 2010.
46. C. Liu, G. Zhang, H. Liu, M. Gheorghe, **F. Ipate**: An Improved Membrane Algorithm for Solving Time-Frequency Atom Decomposition, in *Tenth Workshop on Membrane Computing (WMC10)*, Curtea de Arges, Romania, August 2009, 355-368. Selected, revised papers, in G. Paun et al. (Eds.), LNCS 5957, pp. 371-384, Springer, 2010.
47. G. Zhang, C. Liu, M. Gheorghe, **F. Ipate**: Solving Satisfiability Problems with Membrane Algorithms, in *The Fourth International Conference on Bio-Inspired Computing: Theories and Applications (BIC-TA)*, Beijing, China, 16-19 October 29-36, 2009.
48. R. Lefticaru, **F. Ipate**, C. Tudose: Automated Model Design using Genetic Algorithms and Model Checking, in *4th Balkan Conference in Informatics (BIC 09)*, Thessaloniki, Grece, 17-19 September, 79-84, 2009.
49. M. Gheorghe, **F. Ipate**: On testing P systems, in *Ninth Workshop on Membrane Computing (WMC9)*, 28-31 July 2008, Edinburgh, UK, Revised Selected and Invited Papers, in *Lecture Notes in Computer Science*, 5391, 204-216, Springer, 2009.
50. R. Lefticaru, **F. Ipate**: Search-based Testing using State-based Fitness, in *Proceedings of the 2008 IEEE International Conference on Software Testing Verification and Validation Workshop (ICSTW '08)*, 210-, IEEE Computer Society, Washington, DC, USA, 2008.
51. R. Lefticaru, **F. Ipate**: A Comparative Landscape Analysis of Fitness Functions for Search-based Testing, in *10th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC 2009)*, September 26-29, 2008, Timisoara, Romania, Proceedings. IEEE Computer Society, 2008.
52. **F. Ipate**, R. Lefticaru: Functional Search-based Testing from State Machines, in *The IEEE International Conference on Software Testing Verification and Validation (ICST 2008)*, 9-11 April 2008, Lillehammer, Norway, Proceedings. IEEE Computer Society, 525-528, 2008.
53. **F. Ipate**, R. Lefticaru: State-based Testing is Functional Testing!, in *Testing: Academia and Industry Conference - Practice And Research Techniques (TAIC PART 2007)*, 12-14 September 2007, Windsor, United Kingdom, Proceedings. IEEE Computer Society, 55-64, 2007.
54. **F. Ipate**: Class testing from state diagrams using stream X-machine based methods, in *J. Grundy, J. Han (Eds.): 18th Australian Software Engineering Conference (ASWEC 2007)*, 10-13 April 2007, Melbourne, Australia, Proceedings. IEEE Computer Society, 245-254, 2007.
55. R. Lefticaru, **F. Ipate**: Automatic State-Based Test Generation Using Genetic Algorithms, in *9th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC 2007)* September 26-29, 2007, Timisoara, Romania, Proceedings. IEEE Computer Society, 188-195, 2007.
56. **F. Ipate**: Bounded Sequence Testing from Non-deterministic Finite State Machines, in *M. U. Uyar, A. Y. Duale, M. A. Fecko (Eds.): Testing of Communicating Systems, 18th IFIP TC6/WG6.1 International Conference, TestCom 2006, New York, NY, USA, May 16-18, 2006, Proceedings. Lecture Notes in Computer Science 3964 Springer, 55-70, 2006.*
57. **F. Ipate**, T. Balanescu: Finite State Machine Testing from an OR State Refinement Design, *The 13th Conference On Applied and Industrial Mathematics, CAIM*, Pitesti, Romania, in ROMAI J., 1(2), 109-118, 2006.
58. **F. Ipate**, M. Holcombe: Using State Diagrams to Generate Unit Tests for Object-Oriented Systems, in *H. Baumeister, M. Marchesi, M. Holcombe (Eds.): Extreme Programming and Agile Processes in Software Engineering, 6th International Conference, XP 2005*, Sheffield, UK, June 18-23, 2005, Proceedings. Lecture Notes in Computer Science 3556 Springer, 214-217, 2005.
59. **F. Ipate**, T. Balanescu: A Testing Procedure for Deterministic Cover Finite State Machines, *The 12th Conference On Applied and Industrial Mathematics, CAIM*, Pitesti, Romania, in ROMAI J., vol. 1(2):115-128, 2005.
60. M. Holcombe, **F. Ipate**: Complete Test Generation for Extreme Programming, in *J. Eckstein, H. Baumeister (Eds.): Extreme Programming and Agile Processes in Software Engineering, 5th International Conference, XP 2004*, Garmisch-Partenkirchen, Germany, June 6-10, 2004, Proceedings. Lecture Notes in Computer Science 3092 Springer, 274-277, 2004.
61. T. Balanescu, T. Cowling, M. Gheorghe, M. Holcombe, **F. Ipate**: Eilenberg P Systems, in *G. Paun, G. Rozenberg, A. Salomaa, C. Zandron (Eds.): Membrane Computing, International Workshop, WMC-CdeA 2002, Curtea de Arges, Romania, August 19-23, 2002, Revised Papers. Lecture Notes in Computer Science 2597, Springer, 43-57, 2003.*
62. **F. Ipate**, T. Balanescu, G. Eleftherakis: Testing Communicating Stream X-machines, *Proceedings of the 1st Balkan Conference in Informatics*, 161-174, 2003.
63. **F. Ipate**, T. Balanescu, M. Gheorghe, M. Holcombe: The W-method for refinement of finite state machines, *SoftTest, UK Software Testing Research II*, York, 2-5 September, 2003.
64. **F. Ipate**: Complete Testing based on Machine Specifications, *Proceedings of the 6th International Symposium of Economic Informatics*, Bucharest, 117-125, 2003.
65. **F. Ipate**, M. Gheorghe, M. Holcombe, T. Balanescu: Testing non-deterministic (stream) X-machines, in *R. Hierons and T. Jeron (Eds.), Formal Approaches to Testing of Software, FATES'02*, Brno, Czech Republic, August 24, 35-50, 2002.
66. **F. Ipate**: Two Testing Strategies for Non-Deterministic X-machines, *The 9th Conference On Applied and Industrial Mathematics, CAIM*, Pitesti, Romania, 2001.

67. T. Balanescu, M. Gheorghe, M. Holcombe, **F. Ipate**: Testing Collaborative Agents Defined as Stream X-Machines with Distributed Grammars, in J Kelemen and P Sosik (Eds), *Advances in Artificial Life, 6th European Conference, ECAL 2001*, Prague, Czech Republic, September 10-14, 2001, Proceedings. Lecture Notes in Computer Science 2159 Springer 2001, 296 -305, 2001.
68. **F. Ipate**: Refinement of Stream X-machine Specifications, *Proceedings of the 5th International Symposium of Economic Informatics*, Bucharest, 1117-1125, 2001.
69. **F. Ipate**: A Theory of Testing for X-machines, *The 8th Conference On Applied and Industrial Mathematics, CAIM*, Pitesti, Romania, 115-120, 2000.
70. **F. Ipate**, M.Popescu: A Z Type Language for Specifying X-Machines, *Proceedings of CITTI*, Constanta, Romania, 82- 88, 2000.
71. **F. Ipate**: A method for testing non-deterministic X-machines that finds all faults, *The 7th Conference On Applied and Industrial Mathematics, CAIM*, Pitesti, Romania, 107-113, 1999.
72. **F. Ipate**: Using Hybrid Machines for specifying Hybrid Software Systems, *Proceedings of the 4th International Symposium of Economic Informatics*, Bucharest, 679-686, 1999.
73. **F. Ipate**: Is software testing effective?, *Proceedings of the 3rd International Symposium of Economic Informatics*, Bucharest, 173-179, 1997.
74. **F. Ipate**: X-machine Based Testing, *Proceedings of the 10th International Conference on Control Systems and Computer Science*, Vol. 2, Bucharest, 262-272, 1995.
75. M. Holcombe, **F. Ipate**, A. Grondoudis: Complete Functional Testing of Safety-Critical Systems, *Safety and Reliability in Emerging Control Technologies (A Postprint volume from IFAC Workshop, Daytona Beach, Florida, USA)*, 199-204, 1995.

Research Monograph

1. M. Holcombe, **F. Ipate**: "Correct Systems: Building a Business Process Solution", Springer-Verlag, London, 1998.

Book Chapters

1. M. Gheorghe, **F. Ipate**: Identifiable Kernel P Systems, in *Enjoying Natural Computing*, 130-141, Springer 2018.
2. M. Gheorghe, S. Konur, **F. Ipate**: Kernel P Systems and Stochastic P Systems for Modelling and Formal Verification of Genetic Logic Gates, in *Advances in Unconventional Computing, Volume 22 of the series: Emergence, Complexity and Computation*, 661-675, 2017.
3. A. Turcanu, L. Mierla, **F. Ipate**, A. Stefanescu, H. Bai, M. Holcombe, S. Coakley: Modelling and Analysis of E. coli Respiratory Chain, in *Applications of Membrane Computing in Systems and Synthetic Biology. Emergence, Complexity and Computation Volume 7*, 247-266, 2014.
4. **F. Ipate**, M. Holcombe: "Testing non-deterministic X-machines", in C. Martin-Vide & V. Mitran, eds, *Grammars and Automata for String Processing: from Mathematics and Computer Science to Biology, and Back*, Taylor and Francis, London, 151-162, 2003.
5. **F. Ipate**, M. Gheorghe, M. Holcombe, T. Balanescu: "Testing using X-machine Translations", M. Ito, G. Paun, S. Yu, eds., *Words Semigroups and Transductions*, Word Scientific Series in Computer Science, World Scientific, Singapore, 211-230, 2001.

Books

1. **F. Ipate**: "Object-oriented modelling using UML", University of Pitesti Publishing House, 2001 (in Romanian).
2. **F. Ipate**, M. Popescu: "Database Applications in Oracle8 and Forms6", ALL Publishing House, Bucharest, 2000 (in Romanian).
3. **F. Ipate**: "Principles of Expert Systems", Sylvi Publishing House, Bucharest 1998 (in Romanian).