Nir Piterman, Associate Professor

Coordinates

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Research Interests

My research area is formal verification. I am especially interested in algorithms for model checking and design synthesis. A major part of my work is on the automata-theoretic approach to verification and especially to model checking. I am also working on applications of formal methods to biological modeling.

Qualifications

Oct. 2000 – Mar. 2005 **Ph.D.** in the Department of Computer Science and Applied Mathematics at the Weizmann Institute of Science, Rehovot, Israel.

- **Research Area:** Formal Verification.
- **Thesis:** Verification of Infinite-State Systems.
- **Supervisor:** Prof. Amir Pnueli.

Oct. 1998 – Oct. 2000 **M.Sc.** in the Department of Computer Science and Applied Mathematics at the Weizmann Institute of Science, Rehovot, Israel.

- **Research Area:** Formal Verification.
- **Thesis:** Extending Temporal Logic with ω-Automata.
- **Supervisor:** Prof. Amir Pnueli and Prof. Moshe Vardi.

Oct. 1994 – June 1997 **B.Sc.** in Mathematics and Computer Science in the Hebrew University, Jerusalem, Israel.

Academic Employment

Mar. 2019 – Present **Senior Lecturer/Associate Professor** in the Department of Computer Science and Engineering in University of Gothenburg.

Oct. 2012 – Feb. 2019 **Reader/Associate Professor** in the Department of Informatics in University of Leicester.

Oct. 2010 – Sep. 2012 **Lecturer** in the Department of Computer Science in University of Leicester.

Aug. 2007 – Sep. 2010 **Research Associate** in the Department of Computing in Imperial College London.
Host: Dr. Michael Huth

Oct. 2004 – July 2007 **PostDoc** in the school of Computer and Communication Sciences at the Ecole Polytechnique Fédérale de Lausanne.
Host: Prof. Thomas A. Henzinger

Industry Employment

2000 – 2004 Intel Design Center, Haifa, Israel. Member of the Formal Property Verification team.
Design and implementation of extensions to Intel's property language:

- Vacuity detection - provide useful feedback upon successful verification.
- FSM - modelling layer for the verification engineer.

1996 – 1997 Digital Technical Center, Har Hotzvim, Jerusalem (Today Intel Development Center, Jerusalem). Member of the design and tools team.
Specification and implementation of a module automating equivalence checking for hardware.

Academic Activities

PC chair:	HVC 2015, TACAS 2013.
Program Committee:	TACAS 2020, RADICAL 2019, CAV 2019, CAV 2018, HVC 2016, Synt 2016, LICS 2016, TACAS 2016, HSB 2015, FOSSACS 2015, Synt 2014, LICS 2014, TACAS 2014, Synt 2013, Yr-Concur 2013, Concur 2013, YR-Concur 2012, Gandalf 2012, FORMATS 2012, Synt 2012, CAV 2012, TACAS 2012, YR-Concur 2011, YR-Concur 2010, FORMATS 2010, YR-Concur 2009, MFCS 2009, LICS 2009, AVOCS 2008, YR-Concur 2008.
Journal Editor:	Acta Informatika, 2015-Current. Logical Methods in Computer Science, guest editor of special issue for TACAS 2013. Software Tools for Technology Transfer, guest editor of special issue for TACAS 2013. Logical Methods in Computer Science, guest editor of special issue for LICS 2009.
Workshop Chair:	Formal Methods for Robotics and Automation 2011.
Conference Referee:	Gandalf 2018, LICS 2018, IJCAI 2017, FSTTCS 2016, ICALP 2016, FOCS 2015, ICALP 2015, CAV 2015, LICS 2015, TACAS 2015, POPL 2014, STACS 2014, FACS 2013, CAV 2013, SR 2013, CMSB 2013, POPL 2012, CMSB 2012, FMOODS/Forte 2012, LICS 2012, HSB 2012, FSTTCS 2011, CMSB 2011, CLIMA 2011, Concur 2011, CALCO 2011, ICALP 2011, CAV 2011, FOSSACS 2011, CMSB 2010, Concur 2010, ICALP 2010, LICS 2010, CAV 2010, STACS 2010, VMCAI 2010, HVC 2009, FMCAD 2009, FM 2009, Concur 2009, CAV 2009, TACAS 2009, FOSSACS 2009, STACS 2009, VMCAI 2009, FSTTCS 2008, LPAR 2008, CMSB 2008, MFCS 2008, Concur 2008, FMSB 2008, LICS 2008, TACAS 2008, FOSSACS 2008, VMCAI 2008, LPAR 2007, CAV 2007, LICS 2007, TACAS 2007, POPL 2007, FSTTCS 2006, ATVA 2006, FMCAD 2006, CSL 2006, ICALP 2006, LICS 2006, CAV 2006, FOSSACS 2006, CAV 2005, FME 2005, CAV 2004, TACAS 2004, STOC 2004, FSTTCS 2003, SWSTE 2003, CAV 2003, TACAS 2003, LICS 2002, Concur 2002, CAV 2002, ICALP 2002, Concur 2001, FME 2001, FMCAD 2000.
Journal Referee:	Science of Computer Programming, ACM Transactions in Embedded Computing Systems, ACM Transactions on Programming Languages and Systems, Formal Methods in System Design, Information and Computation, Information Processing Letters, International Journal of Foundations of Computer Science, Journal of Logic and Computation, Logical Methods in Computer Science, Theoretical Computer Science, Theory of Computing Systems, Transactions on Design Automation of Electronic Systems, Transactions on Computational Biology and Bioinformatics.
Grant Referee:	European Research Council 2014, Engineering and Physical Sciences Research Council 2012 & 2013, Portuguese Foundation for Science and Technology 2011, Israel Science Foundation 2017, 2011, 2010. Microsoft Research PhD Scholarship 2009.
PhD Examiner:	Marcin Przybylko, University of Warsaw, Poland and University of New Caledonia, 2019. Pauline Traynard, ENS-Cachan, France, 2016. Sarai Sheinvald, Hebrew University of Jerusalem, Israel, 2014.
PhD Internal Examiner:	Julien Lange, University of Leicester, 2013.

Part Time / Visiting / Consulting Positions

Feb 2019 - present	Part time **Associate Professor** at the Department of Informatics, University of Leicester, UK.
July 2011 - Oct 2018	**Scientific consultant** in Microsoft Research, Cambridge, UK.
Dec 2015 - Sep 2017	**Honorary Reader**, University College London, London, UK.
December 2011	**Visiting researcher** in Department of Computer Science, Technion, Israel.
August 2009	**Scientific consultant** in Microsoft Research, Redmond, WA, USA.

April 2009	**Visiting researcher** in Department of Computer Science, Weizmann Institute of Science, Israel.
October-December 2008	**Visiting researcher (directeur de recherche)** in Verimag, CNRS, Grenoble, France.
2008-2010	**Visiting Fellow** in the Computing Laboratory, Cambridge University, UK.
August 2005	**Visiting researcher** in Department of Computer Science, Weizmann Institute of Science, Israel.

Teaching Experience

Lecturing

- Lecturer in course "Advanced C++ Programming". University of Leicester, 2014, 2015, 2016, 2017.
  Master level course.
- Lecturer in course "Discrete Event Systems". University of Leicester, 2011, 2012, 2013, 2014.
  Master level course.
- Lecturer in course "C++ Programming and Advanced Algorithm Design". University of Leicester, 2012, 2013.
  Master level course.
- Lecturer in course "Models of Computation". Imperial College London, 2010.
- Lecturer in course "Computability and Complexity". Imperial College London, 2008.
  New course format.
- Lecturer in course "Advanced Topics in Automata Theory". Weizmann Institute of Science, 2003.
  New course format. Master level course.

Teaching assistant or Tutor:

- Tutor in course "Reasoning about Programs". Imperial College London, 2008.
- Tutor in course "Mathematical Methods in Computer Science". Imperial College London, 2007.
- Teaching assistant in course "Computer Aided Verification". EPFL, 2006.
- Teaching assistant in course "Theoretical Computer Science III". EPFL, 2005, 2006.
- Teaching assistant in course "Problem Solving in Computer Science". EPFL, 2005.
- Teaching assistant in course "Advanced Topics in Computability". Weizmann Institute of Science, 2002.

Hosted Postdoctoral Researchers

- Yehia Abd-Alrahman, University of Gothenburg and University of Leicester, 9/2018-8/2021.
- Giuseppe Perelli, University of Gothenburg and University of Leicester, 7/2018-6/2021.
- Luminita (Manuela) Bujorianu, University of Leicseter, 2/2014-6/2016.

PhD Students

- Claudia Cauli, University of Leicester/University of Gothenburg, 2016-2020.
  Project: Using Description Logic for Modelling Threats to Cloud Projects.
- Dr Heidy Khlaaf (co-supervised by B. Cook and A. Silva), University College London, 2013-2017.
  Thesis: The Past, Present, and Future(s): Verifying Temporal Software Properties.
- Dr Alexey Bakhirkin (co-supervised by J. Berdine), University of Leicester, 2012-2016.
  Thesis: Recurrent Sets for Non-Termination and Safety of Programs.
- Dr Jim Kuo (co-supervised by M. Huth), Imperial College London, 2010-2013.

Thesis: Parity Games: Descriptive Complexity and Algorithms for New Solvers.

- Dr Nicolas D'Ippolito (co-supervised by S. Uchitel), Imperial College London, 2009-2013.
  Thesis: Synthesis of Event-Based Controllers for Software Engineering.
- Dr Daniel Wagner (supervised by M. Huth), Imperial College London, 2008–2010.
  Thesis: Abstraction of Probabilistic Systems.

Master and Project Students[1]

- Emad Elharbi, Master Project, University of Leicester 2017.
  Project: XML Fuzzing (best technical master project).
- Claudia Cauli, Master Project, Unviersity of Leicester 2016.
  Project: Automata-Theoretic Techniques for Probabilistic μ-Calculus (best theoretical master project).
- Terwase Viashima, Master project, University of Leicester 2012.
  Project: Translation of MITL to Timed Automata (best technical master project).
- Varghese Thomas Praveen, Master project, University of Leicester, 2011.
  Project: Optimizing Streett Determinization (best theoretical master project).
- Alin-Dragos Petculescu, Master project, University of Leicester, 2011.
  Project: Evolutionary Neural Networks (best software development master project).
- Sudeep Juvekar, IIT Bombay, summer intern[2], EPFL, 2005.
  Project: Minimization of Generalized Büchi Automata (CAV 2006 paper).

Additional master students supervised: Ruben Gonzalez (2017), Justina Aniulyte (2017), Yuxuan Gao (2017), Alexandros Stavrinos (2017), Jin Zhang (2017), Shayma Abdulskour (2017), Madiha Haq (2017), Anthony Johnson (2017), Morshed Shawon (2017), Shatabdi Roy (2017), Bingnan Bao (2016), Adedl Dadaa (2016), Maximilian Friedersdorff (2016), Niloptal Mallick (2016), Lal Prasanth Paulraj (2016), Jianjun Zhang (2016), Ryan Sammut (2016), Gurmukh Davgun (2016), Shingrut Poonam (2016), Benqi Wang (2016), Ce Qi (2016), Andrea Vassallo (2015), Amani Ibraheem (2015), Ruibin Liu (2015), Constantinos Mavris (2015), Andrian Sarapuu (2015), Shuwen Yu (2015), Dong Zhang (2015), Tong Zhou (2015), Dorcas Datiri (2015), Okzhas Kazhybayev (2015), Mohammad Khan (2015), Yemisi Oyeleke (2015), Manoj Sakthivel (2015), Guanjie Feng (2014), Andreas Hadjithoma (2014), Thulasiran Daggupati (2014), Thunga Venkatesh (2014), Kalaraj Kuttikrshnan (2014), Yan Huang (2013), Mohan Ramkumar (2013), Qier Chen (2013), Mohammad Rahman (2013), Dian Jin (2013), Waseem Jabar (2013), Ning Xiaobo (2013), Jinan Wu (2013), Sandeep Koolery (2012), Ashwin Mohan (2012), Wei Zhou (2011), Venkata S. Kadiyala (2011), Gosia Gabrial (2008), Hicham Tahiri (2008), Vaibhav Rajan (2007), Luvish Satija (2006)[2], Susmit Kumar Jha (2005)[2],

Administrative Duties

- Secretary of Student-Staff Committee (2011-2018).
- Convenor of Master project module (2010-2018).

Grants

- Principal investigator, ERC Consolidator grant, 5/2018-4/2023. Value 1,870K Euro.
- Principal investigator, EPSRC grant, 2/2014-9/2015. Value 120K GBP.
- Principal investigator, Microsoft Research, PhD Fellowship, 6/2012-5/2015. Value 69K GBP.
- Principal investigator Leicester site, EU Seventh Framework Programme, Marie Curie Action "International Research Staff Exchange Scheme", Mobility between Europe and Argentina, 10/2011-9/2015. Value 573K Euro (Leicester budget 37K GBP).

[1] Full details included only for "interesting" projects: recipients of prizes, leading to a publication, or those that I like.

[2] Similar to UK master degree but without thesis. Three months of full time work.

Prize

- Microsoft Research Outstanding Collaborator 2016.

Personal Interests

Hiking, classical music.

References

Prof. Moshe Y. Vardi
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Talks

Doctoral School Teaching

1. "Games and Synthesis" in EATCS Young Researchers School, Telč, Czech Republic, July 27-August 1, 2014.
2. "Synthesis from Temporal Specifications" in Escuela de Ciencias Informáticas, Summer School, Buenos Aires, Argentina, July 23-28, 2010.

Invited Talks

1. Invited speaker in 38th Symposium on Mathematical Foundations in Computer Science, Klosterneuburg, Austria, August 26-30, 2013.
2. "p-Automata and Obligation Games" in International Symposium on Temporal Representation and Reasoning, Leubeck, Germany, September 12-14, 2011.
3. "p-Automata: Acceptors of Markov Chains" in Amir Pnueli Memorial Symposium, New York, NY, USA, May 8-9, 2010.
4. "Bounded Asynchrony" in 1st meeting on Formal Methods in Systems Biology, Cambridge, UK, June 4-5, 2008.

Conference Talks

1. "A Recursive Probabilistic Temporal Logic" in 17th International Conference on Formal Methods and Software Engineering, Paris, France, Novebmer 3-5, 2015.
2. "Tractable Probabilistic μ-Calculs That Expresses Probabilistic Temporal Logics" in 32nd Symposium on Theoretical Aspects of Computer Science, Munich, Germany, March 4-7, 2015.

3. "Dynamic Reactive Modules" in 22nd International Conference on Concurrency Theory, Aachen, Germany, September 6-9, 2011.
4. "Weak p-Automata: New Foundations for Discrete-Time Probabilistic Verification" in 7th International Conference on Quantitative Evaluation of SysTems, Williamsburg, VA, USA, September 15-17, 2010.
5. "Lower Bounds on Witnesses for Nonemptiness of Universal co-Büchi Automata" in 12th conference on Foundations of Software Science and Computation Structures, York, UK, March 23-25, 2009.
6. "Strategy Logic" in 18th international conference on Concurrency Theory, Lisbon, Portugal, September 3-8, 2007.
7. "Solving Games without Determinization" in 15th Conference on Computer Science Logic, Szeged, Hungary, September 25-29, 2006.
8. "Minimizing Generalized Büchi Automata" in 18th international conference on Computer Aided Verification, Seattle, WA, USA, August 17-20, 2006.
9. "Safraless Compositional Synthesis" in 18th international conference on Computer Aided Verification, Seattle, WA, USA, August 17-20, 2006.
10. "Faster Solutions of Rabin and Streett Games" in 21st IEEE symposium on Logic in Computer Science, Seattle, WA, USA, August 12-15, 2006.
11. "From Nondeterministic Büchi and Streett Automata to Deterministic Parity Automata" in 21st IEEE symposium on Logic in Computer Science, Seattle, WA, USA, August 12-15, 2006.
12. "Global Model Checking for Infinite-State Systems" in 16th international conference on Computer Aided Verification, Boston, MA, USA, July 13-17, 2004.
13. "Bridging the Gap Between Fair Simulation and Trace Inclusion" in 15th international conference on Computer Aided Verification, Boulder, CO, USA, July 8-12, 2003.
14. "Enhanced Vacuity Detection in Linear Temporal Logic" in 15th international conference on Computer Aided Verification, Boulder, CO, USA, July 8-12, 2003.
15. "Pushdown Specifications" in 9th international conference on Logic, Programming, Artificial Intelligence, and Reasoning, Tbilisi, Georgia, October 14-18, 2002.
16. "Model Checking Linear Properties of Prefix-Recognizable Systems" in 14th international conference on Computer Aided Verification, Copenhagen, Denmark, August July 27-31, 2002. CAV 2002.
17. "From Bidirectionality to Alternation" in 26th international Symposium on Mathematical Foundations of Computer Science, Marianske Lazne, Czech Republic, August 27-31, 2001.
18. "Extended Temporal Logic Revisited", in 12th international conference on Concurrency Theory, Aalborg, Denmark, August 20-25, 2001.
19. "Fair Equivalence Relations" in 20th conference on Foundations of Computer Science and Theoretical Computer Science, New Delhi, India, December 11-13, 2000.

Publications

Electronic versions are available at www.cs.le.ac.uk/people/np183/publications.

In all papers, except for 3, 5–7, 9–11, 13, 19, 22, 25, 29, 35, 49, 52, 54, 56–57 and 60 authors are listed alphabetically.

Journal Papers

1. . Paterson, D. Shorthouse, M. Pleijzier, N. Piterman, C. Bendt sen, B.A. Hall, and J. Fisher. A toolbox for discrete modelling of cell signalling dynamics. *Integrative Biology*, 2018. To appear.
2. B. Cook, H. Khlaaf, and N. Piterman. Verifying increasingly expressive temporal logics for infinite-state systems. *Journal of the ACM*, 64(2):15, May 2017.
3. K. Chatterjee and N. Piterman. Obligation parity games and p-automata. *Journal of Symbolic Logic*, 82(2), June 2017.
4. D. Ciolek, N. D'Ippolito, V. Braberman, N. Piterman, and S. Uchitel. Interaction models and automated control under partial observable environments. *Transactions on Software Engineering and Methodology*, 43(1):19–33, January 2017.

5. C.Y. Lim, H. Wang, S. Woodhouse, N. Piterman, L. Wernisch, J. Fisher, and B. Gottgens. Btr: training asynchronous boolean models using single-cell expression data. *BMC Bioinformatics*, 17(355), 2016.
6. V. Moignard, S. Woodhouse, L. Haghverdi, J. Lilly, Y. Tanaka, A.C. Wilkinson, F. Buettner, I.C. Macaulay, W. Jawaid, E. Diamanti, S.-I. Nishikawa, N. Piterman, V. Kouskoff, F.J. Theis, J. Fisher, and B. Göttgens. Decoding the transcriptional program for blood development from single cell gene expression measurements. *Nature Biotechnology*, 33:269–276, 2015.
7. V. Raman, N. Piterman, C. Finucane, and H. Kress-Gazit. Timing semantics for abstraction and execution of synthesized high-level robot control. *IEEE Transactions on Robotics*, 31(3):591–604, 2015. Full version of ICRA13 paper.
8. R. Chuang, B.A. Hall, D. Benque, B. Cook, S. Ishtiaq, N. Piterman, A. Taylor, M.Y. Vardi, S. Koschmieder, B. Gottgens, and J. Fisher. Drug target optimization in chronic myeloid leukemia using innovative computational platform. *Scientific Reports*, 5:8190, 2015.
9. M. Huth, J.H. Kuo, and N. Piterman. The Rabin index of parity games: Its complexity and approximation. *Information and Computation*, 2015. Full version of Gandalf13 paper.
10. B. Hall, N. Piterman, A. Hajnal, and J. Fisher. Emergent stem cell homeostasis in the c. elegans germline is revealed by hybrid modeling. *Biophysical Journal*, 108:365a, 2015.
11. A. Taylor, J. Fisher, B.Cook, S. Ishtiaq, and N. Piterman. Modelling biology - working through (in)-stabilities and frictions. *Computational Culture*, 4, 2014.
12. N. D'Ippolito, V. Braberman, N. Piterman, and S. Uchitel. Synthesising nonanomalous event-based controllers for liveness goals. *Transactions on Software Engineering and Methodology*, 22(1):9, 2013. Full version of FSE10 paper.
13. M. Huth, N. Piterman, and D. Wagner. p-automata: New foundations for discrete-time probabilistic verification. *Performance Evaluation*, 69(7–8):356–378, July–August 2012. Full version of QEST10 paper.
14. S. Nusser-Stein, A. Beyer, I. Rimann, M. Adamczyk, N. Piterman, A. Hajnal, and J. Fisher. Cell-cycle regulation of notch signaling during c. elegans vulval development. *Molecular Systems Biology*, 8(618), 2012.
15. R. Bloem, B. Jobstmann, N. Piterman, A. Pnueli, and Y. Sa'ar. Synthesis of reactive(1) designs. *Journal of Computer and System Sciences*, 78(3):911–938, May 2012. Full version of VMCAI06, DATE07, and COCV07 papers.
16. P. Godefroid and N. Piterman. LTL generalized model checking revisited. *Software Tools for Technology Transfer*, 13(6):571–584, November 2011. Full version of VMCAI09 paper.
17. K. Chatterjee, T.A. Henzinger, and N. Piterman. Strategy logic. *Information and Computation*, 208(6):677–693, June 2010. Full version of Concur 07 paper.
18. H. Fecher, M. Huth, N. Piterman, and D. Wagner. Hintikka games for PCTL on labeled Markov chains. *Performance Evaluation*, 67(9):858–872, September 2010. Full version of QEST 08 paper.
19. J. Fisher and N. Piterman. The executable pathway to biological networks. *Briefings in Functional Genomics*, 9(1):79–92, January 2010.
20. D.Y.Q. Wang, L. Cardelli, A. Phillips, N. Piterman, and J. Fisher. Computational modelling of the EGFR network elucidates control mechanisms regulating signal dynamics. *PLoS Computational Biology*, 3(1):118, December 2009.
21. O. Kupferman, N. Piterman, and M.Y. Vardi. From liveness to promptness. *Formal Methods in System Design*, 34(2):83–103, 2009. Full version of CAV07 paper.
22. N. Piterman. From nondeterministic Büchi and Streett automata to deterministic parity automata. *Logical Methods in Computer Science*, 3(3):5, 2007. Full version of LICS06 paper.
23. J. Fisher, N. Piterman, A. Hajanl, and T.A. Henzinger. Predictive modeling of signaling crosstalk during *C. elegans* vulval development. *PLoS Computational Biology*, 3(5):e92, May 2007.
24. Y. Fang, N. Piterman, A. Pnueli, and L. Zuck. Liveness with invisible ranking. *Software Tools for Technology Transfer*, 8(3):261–279, June 2006. Full version of VMCAI04 and TACAS04 papers.

25. Y. Kesten, N. Piterman, and A. Pnueli. Bridging the gap between fair simulation and trace inclusion. *Information and Computation*, 200(1):35–61, July 2005. Full version of CAV03 paper.
26. J. Fisher, N. Piterman, E.J.A. Hubbard, M.J. Stern, and D. Harel. Computational insights into *C. elegans* vulval development. *Proceedings of the National Academy of Sciences*, 102(6):1951–1956, February 2005.
27. N. Piterman and M.Y. Vardi. From bidirectionality to alternation. *Theoretical Computer Science*, 295(1-3):295–321, February 2003. Full version of MFCS01 paper.

Invited Papers

28. N. Piterman. Synthesis from temporal specifications: New applications in robotics and model-driven development. In *38th International Symposium on Mathematical Foundations of Computer Science 2013*, volume 8087 of *Lecture Notes in Computer Science*, pages 45–49, Klosterneuburg, Austria, August 2013. Springer-Verlag.
29. N. Piterman. p-Automata and obligation games. In *International Symposium on Temporal Representation and Reasoning*, Leubeck, Germany, September 2011. IEEE, IEEE press.
30. J. Fisher, T.A. Henzinger, M. Mateescu, and N. Piterman. Bounded asynchrony: A notion of concurrency tailored for modeling cell-cell interactions. In *1st International Meeting on Formal Methods in Systems Biology*, volume 5054 of *Lecture Notes in Computer Science*, pages 17–32, Cambridge, UK, 2008. Springer-Verlag.

Books

31. N. Piterman, editor. *Haifa Verification Conference*, volume 9434 of *Lecture Notes in Computer Science*. Springer-Verlag, 2015.
32. N. Piterman and S. Smolka, editors. *Tools and Algorithms for the Construction and Analysis of Systems*, volume 7795 of *Lecture Notes in Computer Science*. Springer-Verlag, 2013.
33. N. Piterman. *Extending Temporal Logic with Omega-automata*. Lambert Academic Publishing, 2010.

Book Chapters

34. N. Piterman and A. Pnueli. *Handbook of Model Checking*, chapter Temporal Logic. Springer-Verlag, 2017. To appear.
35. M. Huth, J.H. Kuo, and N. Piterman. Static analysis of parity games: Alternating rechability under parity. In *Semantics, Logic, and Calculi - Essays Dedicated to Hanne Riis Nielson and Flemming Nielson on the Occassion of their 60th Birthdays*, volume 9560 of *Lecture Notes in Computer Science*, pages 159–177. Springer-Verlag, 2016.
36. A. Beyer, R. Eberhard, N. Piterman, M.O. Hengartner, A. Hajnal, and J. Fisher. Advances in experimental medicine and biology. In *Advances in Systems Biology*, volume 736 of *Advances in Experimental Medicine and Biology*, chapter A Dynamic Physical Model of Cell Migration, Differentiation and Apoptosis in *Caenorhabditis elegans*, pages 211–233. Springer-Verlag, 2012.
37. O. Kupferman, N. Piterman, and M.Y. Vardi. An automata-theoretic approach to infinite-state systems. In *Time for Verification: Essays in Memory of Amir Pnueli*, volume 6200 of *Lecture Notes in Computer Science*, pages 202–259. Springer-Verlag, 2010. Full version of CAV02 paper.
38. O. Kupferman, N. Piterman, and M.Y. Vardi. Fair equivalence relations. In *Verification - Theory and Practice, Festschrift celebrating Zohar Manna's 64th Birthday*, volume 2772 of *Lecture Notes in Computer Science*, pages 702–732. Springer-Verlag, 2003. Full version of FSTTCS00 paper.

Conference Papers

39. C. Cauli and N. Piterman. Equivalence of probabilistic mu-calculus and p-automata. In *22nd International Conference on Implementation and Application of Automata*, volume 10329 of *Lecture Notes in Computer Science*, pages 64–75, Marne-la-Vallee, France, June 2017. Springer-

Verlag.

40. R. Wisniewski, C. Sloth, M. Bujorianu, and N. Piterman. Safety verification of piecewise-deterministic markov processes. In *19th ACM International Conference on Hybrid Systems: Computation and Control*, pages 257–266, Vienna, Austria, April 2016. ACM.
41. M. Brockschmidt, B. Cook, S. Ishtiaq, H. Khlaaf, and N. Piterman. T2: Temproal property verification. In *22nd International Conference on Tools and Algorithms for the Construction and Analysis of Systems*, volume 9636 of *Lecture Notes in Computer Science*, pages 387–393, Eindhoven, The Netherlands, April 2016. Springer-Verlag.
42. A. Bakhirkin and N. Piterman. Finding recurrent sets with backwards analysis and trace partitioning. In *22nd International Conference on Tools and Algorithms for the Construction and Analysis of Systems*, volume 9636 of *Lecture Notes in Computer Science*, pages 17–35, Eindhoven, The Netherlands, April 2016. Springer-Verlag.
43. A. Bakhirkin, J. Berdine, and N. Piterman. A forward analysis for recurrent sets. In *22nd International Symposium on Static Analysis*, volume 9291 of *Lecture Notes in Computer Science*, pages 293–311. Springer-Verlag, 2015.
44. P.F. Castro, C. Kilmurray, and N. Piterman. A recursive probabilistic temporal logic. In *17 International Conference on Formal Methods and Software Engineering*, volume 9407 of *Lecture Notes in Computer Science*, pages 336–348. Springer-Verlag, 2015.
45. J. Fisher, A.S. Köksal, N. Piterman, and S. Woodhouse. Synthesising executable gene regulatory networks from single-cell gene expression data. In *27th International Conference on Computer Aided Verification*, Lecture Notes in Computer Science, San Francisco, CA, USA, July 2015. Springer-Verlag.
46. B. Cook, H. Khlaaf, and N. Piterman. On automation of CTL* verification for infinite-state systems. In *27th International Conference on Computer Aided Verification*, volume 9206 of *Lecture Notes in Computer Science*, pages 13–29, San Francisco, CA, USA, July 2015. Springer-Verlag. Chosen for special issue of JACM.
47. B. Cook, H. Khlaaf, and N. Piterman. Fairness for infinite-state systems. In *21st International Conference on Tools and Algorithms for the Construction and Analysis of Systems*, Lecture Notes in Computer Science, London, UK, April 2015. Springer-Verlag.
48. P. Castro, C. Kilmurray, and N. Piterman. Tractable probabilistic μ-calculus that expresses probabilistic temporal logics. In *32nd Symposium on Theoretical Aspects of Computer Science*, LIPIcs, Munich, Germany, March 2015. Schloss Dagstuhl.
49. B. Cook, H. Khlaaf, and N. Piterman. Faster temporal reasoning for infinite-state programs. In *14th conference on Formal Methods in Computer-Aided Design*, Lausanne, Switzerland, 2014. IEEE.
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