

Curriculum Vitae

Name: Miklós Maróti
Born: January 17, 1973.
Szeged, Hungary
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Degrees:

- Ph.D in Mathematics, University of Szeged, Hungary, 2007.
Decidability in algebra.
- Ph.D in Mathematics, Vanderbilt University, Nashville, 2002.
The variety generated by tournaments.
- M.Sc. in Mathematics, József Attila University, Szeged, 1996.
Semilattices with a group of automorphisms.

Professional Positions:

- Associate Professor, University of Szeged, 2007–present.
- Visiting Professor, Vanderbilt University, 2021–2022.
- Visiting Professor, Vanderbilt University, 2016–2018.
- Research Associate Professor, Vanderbilt University, 2012–2013.
- Visiting Professor, Vanderbilt University, 2009.
- Visiting Professor, Charles University, Prague, 2007.
- Assistant Professor, University of Szeged, 2005–2007.
- Visiting Assistant Professor, Vanderbilt University, 2004–2005.
- Research Assistant Professor, Vanderbilt University, 2002–2004.
- Research Scientist, Vanderbilt University, 2002.

Grant Support:

- Principal Investigator of the Hungarian National Development Agency (NFÜ) grant no. TÁMOP-4.2.2-08/1-2008-0008, 2009–2011.

- Principal Investigator of the Hungarian National Research and Technology Office (NKTH) bilateral Czech-Hungarian cooperation grant no. CZ-18/2008, 2009–2010.
- Principal Investigator of the Hungarian National Foundation for Scientific Research (OTKA) grant no. PD 75475, 2008–2011.
- Co-Principal Investigator for the Defense Advanced Research Projects Agency (DARPA) grant no. 733615-01-C-1903, 2003–2005.

Awards and Prizes:

- Certificate of Merit for the Hungarian Ministry, Ministry for Foreign Affairs, 2021.
- Innovation Prize, University of Szeged, 2020.
- DARPA Spectrum Collaboration Challenge, Championship Event, 2nd Prize, 2019.
- Memorial Plaque for the Higher Education of Hungary, Ministry of Education, 2016.
- Test of Time Award, Association of Computing Machinery, SenSys, 2014.
- DARPA Spectrum Challenge, Championship Event, 3rd Prize, 2014.
- Scientific Award, University of Szeged, Faculty of Science and Informatics, 2012.
- János Bolyai Plaque, Hungarian Academy of Sciences, 2012.
- János Bolyai Research Fellowship, Hungarian Academy of Sciences, 2008–2011.
- Bjarni Jónsson Prize for Scientific Research in Mathematics, Vanderbilt University, 2001.
- Conference for Graduate Students in Mathematics, Hungary, 1st Prize, 1998.
- Graduate Assistant Fellowship, Vanderbilt University, 1997–2002.
- György Soros Foundation Stipend, Hungary, 1997–1998.
- Excellent Student of the College of Natural Sciences Award, József Attila University, 1996.
- Schweitzer Miklós National Competition in Mathematics, Hungary, 4th Prize, 1995.
- Schweitzer Miklós National Competition in Mathematics, Hungary, 3rd Prize, 1993.
- Eötvös Loránd National Competition in Physics, Hungary, 3rd Prize, 1990.

Professional Services:

- Editor for *Acta Universitatis Szegediensis*, 2012–present.
- Editor for *Algebra Universalis*, 2011–present.
- Organizing committee member, AAA102 102nd Workshop on General Algebra, Szeged, Hungary, June 24–25, 2022.
- Program committee member, Int. Conf. on Information Processing in Sensor Networks (IPSN), Chicago, USA, April 12–14, 2011.
- Program committee member, Int. Conf. on Information Processing in Sensor Networks (IPSN), Stockholm, Sweden, April 12–16, 2010.
- Organizing committee member, 3rd Novi Sad Algebraic Conference, Novi Sad, Serbia, August 17–21, 2009.
- Program committee member, Conf. on Embedded Networked Systems (SenSys), Sydney, Australia, November 6–9, 2007.
- Program committee member, Int. Conf. on Sensor Technologies and Applications, Valencia, Spain, October 14–20, 2007.
- Program committee member, Euromicro Conference on Digital System Design, Special Session on Resource Aware Sensor Network Systems, Lübeck, Germany, August 29–31, 2007.
- Main organizer, Conf. on Algorithmic Complexity and Universal Algebra, Szeged, Hungary, July 16–20, 2007.
- Program committee member, Int. Conf. on Information Processing in Sensor Networks (IPSN), Cambridge, Massachusetts, USA, April 25–27, 2007.
- Organizing committee member, Int. Conf. on Modern Algebra, Vanderbilt University, Nashville, USA, May 21–24, 2002.

Master's and PhD students:

- *Ádám Kunos*, PhD in mathematics, 2022.
- *Gergő Gyenizse*, PhD in mathematics, 2019.
- *György Kalmár*, MSc in informatics, 2015.
- *Ádám Kunos*, MSc in mathematics, 2014.
- *Máté Farkas-Kiss*, MSc in mathematics, 2014.
- *Gergő Gyenizse*, MSc in mathematics, 2013.
- *Zsuzsanna Sebestyén*, MSc in mathematics, 2011.
- *Krisztián Veres*, PhD in informatics (all but dissertation), 2011–2013.
- *Krisztián Veres*, MSc in informatics, 2010.

- Szabolcs Tóth, MSc in mathematics, 2010.
- Tamás Bitai, MSc in mathematics, 2010.
- Bernadett Sisák, MSc in mathematics, 2009.
- András György Jankó, MSc in mathematics, 2009.

Mathematics journal publications

1. M. Dormán, G. Makay, M. Maróti and R. Vajda, *Monoidal intervals on three- and four-element sets*, Acta Sci. Math. (Szeged) **81** (2015), 399–424.
2. G. Gyenizse, M. Maróti and L. Zádori, *The structure of polynomial operations associated with smooth digraphs*, Algebra Universalis **72** (2014), no. 4, 381–391. (IF 0.442)
3. G. Czédli, M. Maróti and A. B. Romanowska, *A dyadic view of rational convex sets*, Comment. Math. Univ. Carolin. **55**, Issue 2 (2014) 159–173.
4. J. Kincses, G. Makay, M. Maróti, J. Osztényi and L. Zádori, *A Special case of the Stahl conjecture*, European Journal of Combinatorics **34** (2013), 502–511. (IF 0.612)
5. P. Marković, M. Maróti and R. McKenzie, *Finitely related clones and algebras with cube-terms*, Order **29** Issue 2 (2012), 345–359. (IF 0.397)
6. M. Maróti and L. Zádori, *Reflexive digraphs with near-unanimity polymorphisms*, Discrete Mathematics **312**, Issue 15 (2012), 2316–2328. (IF 0.578)
7. G. Czédli and M. Maróti, *On the height of order ideals*, Mathematica Bohemica **135** (2010), 69–80.
8. L. Barto, M. Kozik, M. Maróti, R. McKenzie and T. Niven, *Congruence modularity implies cyclic terms for finite algebras*, Algebra Universalis **61** (2009), no. 3–4, 365–380. (IF 0.245)
9. W. Dziobiak, J. Ježek and M. Maróti, *Minimal varieties and quasi-varieties of semilattices with one automorphism*, Semigroup Forum **78** (2009), no. 2, 253–261. (IF 0.597)

10. L. Barto, M. Kozik, M. Maróti and T. Niven, *CSP dichotomy for special triads*, Proceedings of the AMS **137** (2009), 2921–2934. (IF 0.640)
11. W. Dziobiak, M. Maróti, R. McKenzie and A. Nurakunov, *The weak extension property and finite axiomatizability for quasivarieties*, Fundamenta Mathematicae **202** (2009), 199–223. (IF 0.607)
12. J. Ježek, T. Kepka and M. Maróti, *The endomorphism semiring of a semilattice*, Semigroup Forum **78** (2009), no. 1, 21–26. (IF 0.597)
13. G. Czédli and M. Maróti, *Two notes on the variety generated by planar modular lattices*, Order **26** (2009), no. 2, 109–117. (IF 0.408)
14. M. Maróti, *The existence of a near-unanimity term in a finite algebra is decidable*, Journal of Symbolic Logic **74** (2009), no. 3, 1001–1014. (IF 0.631)
15. C. Carvalho, V. Dalmau, P. Marković and M. Maróti, *$CD(4)$ has bounded width*, Algebra Universalis **60** (2009), no. 3, 293–307. (IF 0.245)
16. G. Czédli, M. Maróti and E. T. Schmidt, *On the scope of averaging for Frankl’s conjecture*, Order **26** (2009), no. 1, 31–48. (IF 0.408)
17. M. Maróti and R. McKenzie, *Existence theorems for weakly symmetric operations*, Algebra Universalis **59** (2008), no. 3–4, 463–489. (IF 0.313)
18. B. A. Davey, M. Jackson, M. Maróti and R. McKenzie, *Principal and syntactic congruences in congruence-distributive and congruence-permutable varieties*, J. Australian Math. Soc. **85** (2008), no. 1, 59–74. (IF 0.315)
19. M. Maróti, *On the (un)decidability of a near-unanimity term*, Algebra Universalis **57** (2007), no. 2, 215–237. (IF 0.424)
20. K. Adaricheva, M. Maróti, R. McKenzie, J. B. Nation and Eric R. Zenk, *The Jónsson-Kiefer property*, Special issue of Studia Logica in memory of Willem Johannes Blok **83** (2006), no. 1–3, 111–131.
21. J. Ježek, M. Maróti and R. McKenzie, *Quasiequational theories of flat algebras*, Czechoslovak Mathematical Journal **55** (2005), no. 3, 665–675. (IF 0.112)

22. M. Maróti and R. McKenzie, *Finite basis problems and results for quasivarieties*, *Studia Logica* **78** (2004) November, no. 1–2, 293–320.
23. R. Freese, J. Ježek, P. Jipsen, P. Marković, M. Maróti and R. McKenzie, *The variety generated by order algebras*, *Algebra Universalis* **47** (2002), no. 2, 103–138. (IF 0.324)
24. J. Ježek, P. Marković, M. Maróti and R. McKenzie, *Equations of tournaments are not finitely based*, *Discrete Mathematics* **211** (2000), no. 1–3, 243–248. (IF 0.294)
25. J. Ježek, P. Marković, M. Maróti and R. McKenzie, *The variety generated by tournaments*, *Acta Univ. Carolinae* **40** (1999), no. 1, 21–41.
26. M. Maróti, *Semilattices with a group of automorphisms*, *Algebra Universalis* **38** (1997), no. 3, 238–265. (IF 0.275)

Computer science journal publications

27. Z. Bátor, A. Lengyel, M. Maróti, L. Körmöczi, Cs. Tölgyesi, A. Bíró, M. Tóth, Z. Kincses, V. Cseh and L. Erdős, *Microclimate-vegetation relationships in natural habitat islands: species preservation and conservation perspectives*, *Időjárás*, **118**, no. 3, 2014, 257–281. (IF 0.500)
28. Á. Lédeczi and M. Maróti, *Wireless sensor node localization*, *Phil. Trans. of the Royal Society A*, **370**, no. 1958, 85–99, 01/2012. (IF 2.891)
29. I. Amundson, J. Sallai, X. Koutsoukos, Á. Lédeczi and M. Maróti, *RF angle of arrival-based node localisation*, *Int. J. of Sensor Networks*, **9** (2011), nos. 3–4, 209–224. (IF 1.386)
30. K. Veress and M. Maróti, *Radiocommunication test suite for wireless sensor networks*, *Periodica Polytechnica, Electrical Engineering*, **55** (2011), no. 3–4, 139–142.
31. B. Kusý, P. Dutta, P. Levis, M. Maróti, Á. Lédeczi and D. Culler, *Elapsed time on arrival: a simple and versatile primitive for canonical time synchronisation services*, *Int. J. Ad Hoc and Ubiquitous Computing* **1** (2006), no. 4, 239–251.

32. Á. Lédeczi, A. Nádas, P. Völgyesi, Gy. Balogh, B. Kusý, J. Sallai, G. Pap, S. Dóra, K. Molnár, M. Maróti and Gy. Simon, *Countersniper system for urban warfare*, ACM Transactions on Sensor Networks **1** (2005), no. 2, 153–177.
33. P. Völgyesi, M. Maróti, S. Dóra, E. Osses and Á. Lédeczi, *Software composition and verification for sensor networks*, Special Issue on New Software Composition Concepts of the Journal of Science of Computer Programming (Elsevier) **56** (2005), no. 1–2, 191–210. (IF 0.734)
34. M. Maróti, Gy. Simon, Á. Lédeczi and J. Sztipánovits, *Shooter localization in urban terrain*, IEEE Computer **37** (2004) August, no. 8, 60–61. (IF 1.432)
35. G. Karsai, M. Maróti, Á. Lédeczi, J. Gray and J. Sztipánovits, *Composition and cloning in modeling and meta-modeling*, IEEE Transactions on Control Systems Technology **12** (2004) March, no. 2, 263–278. (IF 0.923)
36. Á. Lédeczi, Á. Bakay, M. Maróti, P. Völgyesi, G. Nordstrom, J. Sprinkle and G. Karsai, *Composing domain-specific design environments*, IEEE Computer **34** (2001) November, 44–51. (IF 1.062)

Book chapters

37. S. Szilvási, P. Völgyesi, M. Maróti, J. Sallai, Á. Lédeczi, *Interferometry in wireless sensor networks*, Chapter 21 in Interferometry - Research and applications in science and technology (ed. Ivan Padron), ISBN 978-953-51-0403-2, InTech Publishing, 2012, 437–462.
38. Á. Lédeczi, M. Maróti and P. Völgyesi, *Framework for the rapid development of modeling environments*, Chapter 13 in Advanced Topics in Database Research, volume III, ISBN 978-159-14-0255-8, Idea Group Publishing, 2004, 257–271.

Conference proceedings

39. W. Hedgecock, M. Maróti, Á. Lédeczi, P. Völgyesi and R. Banalagay, *Accurate real-time relative localization using single-frequency GPS*, 12th

ACM Conference on Embedded Networked Sensor Systems (SenSys),
Memphis, USA, November 2014, 206–220.

40. M. Maróti, T. Kecskés, R. Kereskényi, B. Broll, P. Völgyesi, L. Jurácz, T. Levendoszky and Á. Lédeczi, *Next generation (Meta)modeling: Web- and cloud-based collaborative tool infrastructure*, 8th Workshop on Multi-Paradigm Modeling (MPM), Valencia, Spain, September 2014, in CEUR Workshop Proceedings **1237**, 41–60.
41. G. Zachár, Gy. Simon and M. Maróti, *Radio interferometric object tracking*, 8th International Conference on Sensing Technology, Liverpool, United Kingdom, September 2014, 453–458.
42. M. Maróti, R. Kereskényi, T. Kecskés, P. Völgyesi and Á. Lédeczi, *Online collaborative environment for designing complex computational systems*, 14th International Conference on Computational Science, Cairns, Australia, June 2014, in Procedia Computer Science **29**, 2432–2441.
43. W. Hedgecock, M. Maróti, J. Sallai, P. Völgyesi and Á. Lédeczi, *High-accuracy differential tracking of low-cost GPS receivers*, ACM 11th International Conference on Mobile Systems, Applications, and Services (MobiSys), Taipei, Taiwan, June 2013, 221–234.
44. G. Simkó, T. Levendovszky, M. Maróti and J. Sztipanovits, *Towards a theory for cyber-physical systems modeling*, 3rd Workshop on Design, Modeling and Evaluation of Cyber Physical Systems (CyPhy), Philadelphia, USA, April 2013, 56–61.
45. J. Sallai, Á. Lédeczi, I. Amundson, X. Koutsouks and M. Maróti, *Using RF received phase for indoor tracking*, 6th Workshop on Hot Topics in Embedded Networked Systems, Killarney, Ireland, June 2010, 1–6.
46. P. Völgyesi, J. Sallai, Á. Lédeczi, P. Dutta and M. Maróti, *Software development for a novel WSN platform*, ICSE Workshop on Software Engineering for Sensor Network Applications (SENSEA), New York, USA, February 2010, 20–25.
47. Á. Lédeczi, P. Völgyesi, J. Sallai, B. Kusý, X. Koutsoukos and M. Maróti, *Towards precise indoor RF localization*, 5th Workshop on Embedded Networked Sensors (HotEmNets), Charlottesville, USA, June 2008, 1–5.

48. B. Kusý, Gy. Balogh, Á. Lédeczi, J. Sallai and M. Maróti, *inTrack: High precision tracking of mobile sensor nodes*, 4th European Workshop on Wireless Sensor Networks (EWSN), Delft, The Netherlands, January 2007, in Springer-Verlag Lecture Notes in Computer Science **4373** (2007), 51–66.
49. J. Sallai, M. Maróti and Á. Lédeczi, *A concurrency abstraction for reliable sensor network applications*, 12th Monterey Workshop, Laguna Beach, USA, September 2005, in Springer-Verlag Lecture Notes in Computer Science **4322** (2007), 143–160.
50. B. Kusý, Á. Lédeczi, M. Maróti and L. Meertens, *Node-density independent localization*, 5th IEEE Int. Conf. on Information Processing in Sensor Networks (IPSN), Nashville, USA, April 2006, 441–448.
51. M. Kushwaha, K. Molnár, J. Sallai, P. Völgyesi, M. Maróti and Á. Lédeczi, *Sensor node localization using mobile acoustic beacons*, 2nd IEEE Int. Conf. on Mobile Ad-hoc and Sensor Systems (MASS), Washington, USA, November 2005, (CD-ROM) 9 pages.
52. M. Maróti, B. Kusý, Gy. Balogh, P. Völgyesi, A. Nádas, K. Molnár, S. Dóra and Á. Lédeczi, *Radio interferometric geolocation*, 3rd ACM Int. Conf. on Embedded Networked Sensor Systems (SenSys), San Diego, USA, November 2005, 1–12.
53. Gy. Balogh, Á. Lédeczi, M. Maróti and Gy. Simon, *Time of arrival data fusion for source localization*, Conf. on Sensorfusion, Visegrád, Hungary, July 2005, (CD-ROM) 10 pages.
54. Á. Lédeczi, P. Völgyesi, M. Maróti, Gy. Simon, Gy. Balogh, A. Nádas, B. Kusý, S. Dóra and G. Pap, *Multiple simultaneous acoustic source localization in urban terrain*, 4th IEEE Int. Conf. on Information Processing in Sensor Networks (IPSN), Los Angeles, April 2005, USA, 491–496.
55. Á. Lédeczi, Gy. Balogh, Z. Molnár, P. Völgyesi and M. Maróti, *Model integrated computing in the large*, IEEE Aerospace Conference, Big Sky, USA, March 2005, 1–8.
56. Gy. Simon, M. Maróti, Á. Lédeczi, Gy. Balogh, B. Kusý, A. Nádas, G. Pap, J. Sallai and K. Frampton, *Sensor network-based countersniper*

- system*, 2nd ACM Int. Conf. on Embedded Networked Sensor Systems (SenSys), Baltimore, USA, November 2004, 1–12.
57. M. Maróti, B. Kusý, Gy. Simon and Á. Lédeczi, *The flooding time synchronization protocol*, 2nd ACM Int. Conf. on Embedded Networked Sensor Systems (SenSys), Baltimore, USA, November 2004, 39–49.
 58. M. Maróti, *Directed flood-routing framework for wireless sensor networks*, 5th ACM Int. Middleware Conference, Toronto, Canada, October 2004, in Springer-Verlag Lecture Notes in Computer Science **3231** (2004), 99–114.
 59. J. Sallai, Gy. Balogh, M. Maróti, Á. Lédeczi and B. Kusý, *Acoustic ranging in resource-constrained sensor networks*, Int. Conf. on Wireless and Mobile Computing (ICWN), Las Vegas, USA, June 2004, 467–473.
 60. B. Kusý, M. Maróti, G. Simon, and Á. Lédeczi, *Robust multi-hop time synchronization in sensor networks*, Int. Conf. on Wireless and Mobile Computing (ICWN), Las Vegas, USA, June 2004, 454–460.
 61. B. Kusý, Á. Lédeczi, M. Maróti and P. Völgyesi, *Domain independent generative modeling*, 11th IEEE Int. Conf. on the Engineering of Computer Based Systems (ECBS), Brno, Czech Republic, May 2004, 29–34.
 62. S. Kogekar, S. Neema, B. Eames, X. Koutsoukos, Á. Lédeczi and M. Maróti, *Constraint-guided dynamic reconfiguration in sensor networks*, 3rd IEEE Int. Conf. on Information Processing in Sensor Networks (IPSN), Berkeley, USA, April 2004, 379–387.
 63. P. Völgyesi, M. Maróti and Á. Lédeczi, *Model-based software synthesis for distributed control systems and sensor networks*, 4th Int. Carpathian Control Conference (ICCC), High Tatras, Slovak Republic, May 2003, (CD-ROM) 4 pages.
 64. Gy. Simon, P. Völgyesi, M. Maróti and Á. Lédeczi, *Simulation-based optimization of communication protocols for large-scale wireless sensor networks*, IEEE Aerospace Conference, Big Sky, USA, March 2003, no. 3, 1339–1346.

65. M. Maróti, P. Völgyesi, Gy. Simon, G. Karsai and Á. Lédeczi, *Distributed middleware services composition and synthesis technology*, IEEE Aerospace Conference, Big Sky, USA, March 2003, no. 6, 2855–2862.
66. T. Levendovszky, G. Karsai, Á. Lédeczi and M. Maróti, *Model reuse with metamodel-based transformations*, 7th Int. Conf. on Software Reuse: Methods, Techniques and Tools (ICSR), Austin, USA, April 2002, in Springer-Verlag Lecture Notes in Computer Science **2319** (2002), 166–178.
67. M. Maróti, K. Frampton, G. Karsai, S. Bartók and Á. Lédeczi, *Experimental platform for studying distributed embedded control applications*, Languages, Compilers, and Tools for Embedded Systems Conference, Berlin, Germany, June 2002, 1–8.
68. G. Karsai, Á. Lédeczi and M. Maróti, *On generators for embedded information systems*, 18th IEEE Conf. on Instrumentation and Measurement Technology, Budapest, Hungary, May 2001, vol. 3, 1474–1478.
69. Á. Lédeczi, G. Nordstrom, G. Karsai, P. Völgyesi and M. Maróti, *On metamodel composition*, IEEE Int. Conf. on Control Applications (CCA), Mexico City, Mexico, September 2001, 756–760.
70. Á. Lédeczi, M. Maróti, Á. Bakay, G. Karsai, J. Garrett, C. Thomason, G. Nordstrom, J. Sprinkle and P. Völgyesi, *The generic modeling environment*, IEEE Int. Workshop on Intelligent Signal Processing (WISP), Budapest, Hungary, May 2001, (CD-ROM) 6 pages.
71. Á. Lédeczi, Á. Bakay and M. Maróti, *Model-integrated embedded systems*, 1st Int. Workshop on Self-Adaptive Software (IWSAS), Oxford, UK, April 2000, in Springer-Verlag Lecture Notes in Computer Science **1936** (2001), 99–115.
72. D. Deva, J. Sprinkle, M. Maróti and G. Nordstrom, *Towards a standard for model specification and storage*, IEEE Int. Conference on Systems, Man and Cybernetics (SMC), Nashville, USA, September 2000, 364–369.
73. Á. Lédeczi, M. Maróti, G. Karsai and G. Nordstrom, *Metaprogrammable toolkit for model-integrated computing*, IEEE Int. Conference on Engi-

neering of Computer Based Systems (ECBS), Nashville, USA, March 1999, 311–317.

Patents

1. W. Hedgecock, M. Maróti, J. Sallai, P. Völgyesi, Á. Lédeczi, *Method and system for high-accuracy differential tracking of global positioning system (GPS) receivers*, US patent WO2014171999A3, Vanderbilt University.
2. Á. Lédeczi, M. Maróti, Gy. Balogh, P. Völgyesi, A. Nádas, K. Molnár, S. Dóra and B. Kusý, *System and methods of radio interference based localization in sensor networks*, US patent 7558583, Vanderbilt University, July 7, 2009.
3. Á. Lédeczi, M. Maróti, Gy. Simon and Gy. Balogh, *Acoustic source localization system and applications of the same*, US patent 7433266, Vanderbilt University, October 7, 2008.