

Djordje Zikelic (Đorđe Žikelić)

Djordje Zikelic (Đorđe Žikelić)

School of Computing and Information Systems
Singapore Management University (SMU)
80 Stamford Road
Singapore 178902

Email: dzikelic@smu.edu.sg

Office Phone: 6828 0973



Education

PhD, Institute of Science and Technology Austria, Austria, 2023

Bachelor of Arts and Master of Mathematics, University of Cambridge, United Kingdom, 2018

Academic Appointments

Assistant Professor of Computer Science, School of Computing and Information Systems, SMU, Jan 2024 - Present

Other Positions Held

Applied Scientist Intern, Amazon, UK, Aug 2022 – Oct 2022

Applied Scientist Intern, Amazon, UK (virtual), Oct 2020 – Jan 2021

Awards and Honors

Meta PhD Research Fellowship – finalist for the Programming Languages category, 2022

Gonville & Caius Scholarship and Cambridge Trust Scholarship, 2014 - 2018

(full university fees, tuition fees, and maintenance costs)

RESEARCH

Research Interests

Formal Methods, Artificial Intelligence, Programming Languages

Publications

Journal Articles [Refereed]

On lexicographic proof rules for probabilistic termination, by CHATTERJEE, Krishnendu; GOHARSHADY, Ehsan Kafshdar; NOVOTNÝ, Petr; ZÁREVÚCKÝ, Jiri; ŽIKELIĆ, Đorđe. (2023). *Formal Aspects of Computing*, 35(2), 11:1-11:25. <https://doi.org/10.1145/3585391> (Published)

Social balance on networks: Local minima and best-edge dynamics, by CHATTERJEE, Krishnendu; SVOBODA, Jakub; ŽIKELIĆ, Đorđe; PAVLOGIANNIS, Andreas; TKADLEC, Josef. (2022). *Physical Review E*, 106(3), 034321. <https://link.aps.org/doi/10.1103/PhysRevE.106.034321> (Published)

Bidding mechanisms in graph games, by AVNI, Guy; HENZINGER, Thomas A.; ŽIKELIĆ, Đorđe. (2021). *Journal of Computer and System Sciences* 119, 133-144. <https://doi.org/10.1016/j.jcss.2021.02.008> (Published)

Theorems about quadrilaterals and conics, by BARALIĆ, Đorđe; GRBIĆ, Branko; ŽIKELIĆ, Đorđe. (2014). *International Journal of Computer Mathematics* 91(7), 1407-1421. <https://doi.org/10.1080/00207160.2013.844338> (Published)

Conference Proceedings

Compositional policy learning in stochastic control systems with formal guarantees, by ŽIKELIĆ, Đorđe; LECHNER, Mathias; VERMA, Abhinav; CHATTERJEE, Krishnendu; HENZINGER, Thomas A. (2023.0). *Proceedings of the 37th Conference on Neural Information Processing Systems, New Orleans, LA, USA, December 10-16*. (Accepted)

Learning provably stabilizing neural controllers for discrete-time stochastic systems, by ANSARIPOUR, Matin; CHATTERJEE, Krishnendu; HENZINGER, Thomas A.; LECHNER, Mathias; ŽIKELIĆ, Đorđe. (2023.0). *Automated Technology for Verification and Analysis. ATVA 2023, Singapore, October 24-27, 2023*, (pp. 357-379) Singapore: Springer. https://doi.org/10.1007/978-3-031-45329-8_17 (Published)

Reachability poorman discrete-bidding dames, by AVNI, Guy; MEGGENDORFER, Tobias; SADHUKHAN, Suman; TKADLEC, Josef; ŽIKELIĆ, Đorđe. (2022.0). *ECAI 2023 - 26th European Conference on Artificial Intelligence, September 30 - October 4, 2023, Kraków, Poland - Including 12th Conference on Prestigious Applications of Intelligent Systems (PAIS 2023)*, (pp. 141-148) Kraków, Poland: IOS Press. <https://doi.org/10.3233/FAIA230264> (Published)

MDPs as distribution transformers: affine invariant synthesis for safety objectives, by AKSHAY, S; CHATTERJEE, Krishnendu; MEGGENDORFER, Tobias; ŽIKELIĆ, Đorđe. (2022.0) *Computer Aided Verification - 35th International Conference, CAV 2023, Paris, France, July 17-22, 2023, Proceedings, Part III*, (pp. 86-112) Paris, France: Springer. https://doi.org/10.1007/978-3-031-37709-9_5 (Published)

A learner-verifier framework for neural network controllers and certificates of stochastic systems, by CHATTERJEE, Krishnendu; HENZINGER, Thomas A.; LECHNER, Mathias; ŽIKELIĆ, Đorđe. (2023.0). *Tools and Algorithms for the Construction and Analysis of Systems - 29th International Conference, TACAS 2023, Held as Part of the European Joint Conferences on Theory and Practice of Software, ETAPS 2023, Paris, France, April 22-27, 2023, Proceedings, Part I*, (pp. 3-25) Paris, France: Springer. https://doi.org/10.1007/978-3-031-30823-9_1 (Published, invited)

Learning control policies for stochastic systems with reach-avoid guarantees, by ŽIKELIĆ, Đorđe; LECHNER, Mathias; HENZINGER, Thomas A.; CHATTERJEE, Krishnendu. (2023.0). *Proceedings of the Thirty-Seventh AAAI Conference on Artificial Intelligence, Washington, DC, USA, 2023 February 7-14*, (pp. 11926-11935) Washington, USA: AAAI Press. <https://doi.org/10.1609/aaai.v37i10.26407> (Published)

Quantization-aware interval bound propagation for training certifiably robust quantized neural networks, by LECHNER, Mathias; ŽIKELIĆ, Đorđe; CHATTERJEE, Krishnendu; HENZINGER, Thomas A.; RUS, Daniela. (2023.0). *Proceedings of the Thirty-Seventh AAAI Conference on Artificial Intelligence, Washington, DC, USA, 2023 February 7-14*, (pp. 14964-14973) Washington, USA: AAAI Press. <https://doi.org/10.1609/aaai.v37i12.26747> (Published)

- Bidding graph games with partially-observable budgets, by AVNI, Guy; JECKER, Ismaël; ŽIKELIĆ, Đorđe. (2023.0). *Proceedings of the Thirty-Seventh AAAI Conference on Artificial Intelligence, Washington, DC, USA, 2023 February 7-14*, (pp. 14964-14973) Washington, USA: AAAI Press. <https://doi.org/10.1609/aaai.v37i5.25679> (Published)
- Algorithms and hardness results for computing cores of markov chains, by AHMADI, Ali; CHATTERJEE, Krishnendu; GOHARSHADY, Amir Kafshdar; MEGGENDORFER, Tobias; SAFAVI, Roodabeh; ŽIKELIĆ, Đorđe. (2022.0). *42nd IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science, FSTTCS 2022, December 18-20, 2022, IIT Madras, Chennai, India*, (pp. 29:1–29:20) Madras, India: Schloss Dagstuhl - Leibniz-Zentrum für Informatik. <https://doi.org/10.4230/LIPIcs.FSTTCS.2022.29> (Published)
- Sound and complete certificates for quantitative termination analysis of probabilistic programs, by CHATTERJEE, Krishnendu; GOHARSHADY, Amir Kafshdar; MEGGENDORFER, Tobias; ŽIKELIĆ, Đorđe. (2022.0). *Computer Aided Verification - 34th International Conference, CAV 2022, Haifa, Israel, August 7-10, 2022, Proceedings, Part I*, (pp. 55–78) Haifa, Israel: Springer. https://doi.org/10.1007/978-3-031-13185-1_4 (Published)
- Differential cost analysis with simultaneous potentials and anti-potentials, by ŽIKELIĆ, Đorđe; CHANG, Bor-Yuh Evan; BOLIGNANO, Pauline; RAIMONDI, Franco. (2022.0). *PLDI '22: 43rd ACM SIGPLAN International Conference on Programming Language Design and Implementation, San Diego, CA, USA, June 13 - 17, 2022*, (pp. 442-457) San Diego, CA, USA: ACM. <https://doi.org/10.1145/3519939.3523435> (Published)
- Stability verification in stochastic control systems via neural network supermartingales, by LECHNER, Mathias; ŽIKELIĆ, Đorđe; CHATTERJEE, Krishnendu; HENZINGER, Thomas A. (2022.0). *Thirty-Sixth AAAI Conference on Artificial Intelligence, AAAI 2022 Virtual Event, February 22 - March 1, 2022*, (pp. 7326-7336) Virtual: AAAI Press. <https://doi.org/10.1609/aaai.v36i7.20695> (Published)
- Infinite time horizon safety of bayesian neural networks, by LECHNER, Mathias; ŽIKELIĆ, Đorđe; CHATTERJEE, Krishnendu; HENZINGER, Thomas A. (2021.0). *Advances in Neural Information Processing Systems 34: Annual Conference on Neural Information Processing Systems 2021, NeurIPS 2021, December 6-14, 2021, virtual*, (pp. 10171-10185) Virtual: <https://proceedings.neurips.cc/paper/2021/hash/544defa9fddff50c53b71c43e0da72be-Abstract.html> (Published)
- On lexicographic proof rules for probabilistic termination, by CHATTERJEE, Krishnendu; GOHARSHADY, Ehsan Kafshdar; NOVOTNÝ, Petr; ZÁREVÚCKÝ, Jiri; ŽIKELIĆ, Đorđe. (2021.0). *Formal Methods - 24th International Symposium, FM 2021, Virtual Event, November 20-26, 2021, Proceedings*, (pp. 619-639) Virtual: Springer https://doi.org/10.1007/978-3-030-90870-6_33 (Published)
- Proving non-termination by program reversal, by CHATTERJEE, Krishnendu; GOHARSHADY, Ehsan Kafshdar; NOVOTNÝ, Petr; ŽIKELIĆ, Đorđe. (2021.0). *PLDI '21: 42nd ACM SIGPLAN International Conference on Programming Language Design and Implementation, Virtual Event, Canada, June 20-25, 2021*, (pp. 1033-1048) Virtual: ACM. <https://doi.org/10.1145/3453483.3454093> (Published)
- Scalable verification of quantized neural networks, by HENZINGER, Thomas A.; LECHNER, Mathias; ŽIKELIĆ, Đorđe. (2021.0). *Thirty-Fifth AAAI Conference on Artificial Intelligence, AAAI 2021, Virtual Event, February 2-9, 2021*, (pp. 3787-3795) Virtual: AAAI Press. <https://doi.org/10.1609/aaai.v35i5.16496> (Published)
- Infinite-duration all-pay bidding games, by AVNI, Guy; JECKER, Ismaël; ŽIKELIĆ, Đorđe. (2021.0). *Proceedings of the 2021 ACM-SIAM Symposium on Discrete Algorithms, SODA 2021, Virtual Conference, January 10 - 13, 2021* (pp. 617-636) Virtual: SIAM. <https://doi.org/10.1137/1.9781611976465.38> (Published)
- Bidding mechanisms in graph games, by AVNI, Guy; HENZINGER, Thomas A.; ŽIKELIĆ, Đorđe. (2019.0). *44th International Symposium on Mathematical Foundations of Computer Science, MFCS 2019, August 26-30, 2019, Aachen, Germany* (pp. 11:1-11:13) Aachen, Germany: Schloss Dagstuhl - Leibniz-Zentrum für Informatik. <https://doi.org/10.4230/LIPIcs.MFCS.2019.11> (Published)
- Optimizing expectation with guarantees in POMDPs, by CHATTERJEE, Krishnendu; NOVOTNÝ, Petr; PEREZ, Guillermo A.; RASKIN, Jean-François; ŽIKELIĆ, Đorđe. (2017.0). *Proceedings of the Thirty-First AAAI Conference on Artificial Intelligence, February 4-9, 2017, San Francisco, California, USA* (pp. 3725-3732) San Francisco, CA, USA:

AAAI Press. <https://doi.org/10.1609/aaai.v31i1.11046> (Published)

Stochastic invariants for probabilistic termination, by CHATTERJEE, Krishnendu; NOVOTNÝ, Petr; ŽIKELIĆ, Đorđe. (2017.0). *Proceedings of the 44th ACM SIGPLAN Symposium on Principles of Programming Languages, POPL 2017, Paris, France, January 18-20, 2017* (pp. 145-160) Paris, France: ACM. <https://doi.org/10.1145/3009837.3009873> (Published)

TEACHING

Teaching Areas

Formal Methods, Artificial Intelligence, Programming Languages, Foundations

Courses Taught

Singapore Management University

Undergraduate Programmes :

Heuristic Search and Optimisation

EXTERNAL SERVICE – PROFESSIONAL

Program Committee Member, AAAI 2024

Program Committee Member, AAAI 2023

Program Committee Member, ECAI 2023

Artifact Evaluation Committee Member, CAV 2023

Artifact Evaluation Committee Member, CAV 2022

Reviewer/External Reviewer/Subreviewer, TACAS 2024, POPL 2024, FSTTCS 2023, ATVA 2023, CDC 2023, LPAR 2023, CAV 2023, FoSSaCS 2022, ICML 2022, AAMAS 2022