Yong Li

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Work Experience

Marie Skłodowska-Curie Research Fellow, University of Liverpool — Oct. 2022 - Oct. 2024
Associate Research Professor, Institute of Software Chinese Academy of Sciences — Oct. 2022 - present
Research Assistant, Institute of Software Chinese Academy of Sciences — Apr. 2020 - Oct. 2022
Virtual Postdoctoral Researcher, working with Prof. Moshe Y. Vardi — Jan. 2020 - Oct. 2022

Education

Unversity of Chinese Academy of Sciences — Beijing, China
Ph.D. in Computer Software and Theory — Aug. 2013 - Jan. 2020
Advisor: Prof. Lijun Zhang

Nanjing Unversity of Posts and Telecommunications — Nanjing, China
B.S. in Computer Science and Technology — Sept. 2009 - Jun. 2013

Awards and Honors

- CAS Outstanding PhD Thesis Award — Aug. 2022
- Beijing Outstanding Graduate — Jul. 2020
- CAS President Scholarship — Jul. 2019
- China National Scholarship — Nov. 2018
- First Class Scholarship for Ph.D. Student — Sept. 2017
- First Class Scholarship for Ph.D. Student — Sept. 2016
- China National Scholarship — Nov. 2010

Research Stays

Department of Computer Science, Rice Unversity — Houston, USA
Host: Prof. Moshe Y. Vardi — Feb. 1 - Jul. 02 2019

Institute of Information Science, Academia Sinica — Taipei, China
Host: Dr. Yu-Fang Chen — Jul. 11 - Jul. 26 2018

Institute of Information Science, Academia Sinica — Taipei, China
Host: Dr. Yu-Fang Chen — Jan. 27 - Feb. 9 2018

Institute of Information Science, Academia Sinica — Taipei, China
Host: Dr. Yu-Fang Chen — Nov. 3 - Nov. 18 2017

Institute of Information Science, Academia Sinica — Taipei, China
Host: Dr. Yu-Fang Chen — Aug. 22 - Sept. 6 2017

Institute of Information Science, Academia Sinica — Taipei, China
Host: Dr. Yu-Fang Chen — May 17 - May 31 2017

Dependable Systems and Software Group, Saarland University — Saarbrücken, Germany
Host: Prof. Holger Hermanns — Feb. 1 - Feb. 15 2016

Software Modelling and Verification Group, RWTH Aachen — Aachen, Germany
Host: Prof. Joost-Pieter Katoen — Oct. 17 2015 - Jan. 31 2016

Professional Activities

- Reviewer: Logical Methods in Computer Science
- Subreviewer: FOSSACS 2024, CSL 2024, CONCUR 2023, CAV 2023, TACAS 2022, CAV 2021, FOSSACS 2020, FM 2019, TASE 2019, ICECCS 2018
- Artifact Evaluation PC member: iFM 2023, TACAS 2022, TACAS 2021, TACAS 2019,

Research Projects

- Project award for Distinguished Research Assistants, PI (Principle Investigator), grant worth of 600,000 CNY from Chinese Academy of Sciences, 2020 - 2021
- Formal modelling and reasoning methods for root cause analysis in IT systems, PI, grant worth of 250,000 CNY from Cloudwise (Beijing) Technology Co. Ltd., May 2021 - Nov. 2021
- Research on fundamental problems of Büchi automata, PI, grant worth of 300,000 CNY from NSFC, Jan. 2022 - Dec. 2024

Publications

[1] Daniele Dell'Erba, Yong Li, and Sven Schewe. DFAMiner: Mining minimal separating DFAs from labelled samples. In FM. Springer, 2024.

[2] Yong Li, Sven Schewe, and Qiyi Tang. Angluin-style learning of deterministic Büchi and co-Büchi automata. In IJCAI. AAAI, 2024.

[3] Yong Li, Sven Schewe, and Moshe Y. Vardi. Singly exponential translation of alternating weak Büchi automata to unambiguous Büchi automata. Theor. Comput. Sci., 1006:114650, 2024.

[4] Yong Li, Sven Schewe, and Qiyi Tang. A novel family of finite automata for recognizing and learning ømega-regular languages. In Étienne André and Jun Sun, editors, Automated Technology for Verification and Analysis - 21st International Symposium, ATVA 2023, Singapore, October 24-27, 2023, Proceedings, Part I, volume 14215 of Lecture Notes in Computer Science, pages 53–73. Springer, 2023.

[5] Suguman Bansal, Yong Li, Lucas M. Tabajara, Moshe Y. Vardi, and Andrew M. Wells. Model checking strategies from synthesis over finite traces. In Étienne André and Jun Sun, editors, Automated Technology for Verification and Analysis - 21st International Symposium, ATVA 2023, Singapore, October 24-27, 2023, Proceedings, Part I, volume 14215 of Lecture Notes in Computer Science, pages 227–247. Springer, 2023.

[6] Yong Li, Sven Schewe, and Moshe Y. Vardi. Singly exponential translation of alternating weak büchi automata to unambiguous büchi automata. In Guillermo A. Pérez and Jean-François Raskin, editors, 34th International Conference on Concurrency Theory, CONCUR 2023, September 18-23, 2023, Antwerp, Belgium, volume 279 of LIPIcs, pages 37:1–37:17. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2023.

[7] Vojtech Havlena, Ondrej Lengál, Yong Li, Barbora Smahlíková, and Andrea Turrini. Modular mix-and-match complementation of Büchi automata. In Sriram Sankaranarayanan and Natasha Sharygina, editors, 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 2022, Paris, France, April 22-27, 2023, Proceedings, Part I, volume 13993 of Lecture Notes in Computer Science, pages 249–270. Springer, 2023.

[8] Jianling Fu, Cheng-Chao Huang, Yong Li, Jingyi Mei, Ming Xu, and Lijun Zhang. Quantitative controller synthesis for consumption markov decision processes. Inf. Process. Lett., 180:106342, 2023.

[9] Weizhi Feng, Yong Li, Andrea Turrini, Moshe Y. Vardi, and Lijun Zhang. On the power of finite ambiguity in büchi complementation. Inf. Comput., 292:105032, 2023.

[10] Yi Li, Xie Li, Yong Li, Xuechao Sun, Andrea Turrini, and Lijun Zhang. Synthesizing ranking functions for loop programs via SVM. Theor. Comput. Sci., 935:1–20, 2022.

[11] Moshe Y. Vardi, Seth Fogarty, Yong Li, and Yih-Kuen Tsay. Towards a grand unification of büchi complementation constructions. In Jean-François Raskin, Krishnendu Chatterjee, Laurent Doyen, and Rupak Majumdar, editors, Principles of Systems Design - Essays Dedicated to Thomas A. Henzinger on the Occasion of His 60th Birthday, volume 13660 of Lecture Notes in Computer Science, pages 185–207. Springer, 2022.

[12] Suguman Bansal, Giuseppe De Giacomo, Antonio Di Stasio, Yong Li, Moshe Y. Vardi, and Shufang Zhu. Compositional safety LTL synthesis. In Akash Lal and Stefano Tonetta, editors, Verified Software. Theories, Tools and Experiments - 14th International Conference, VSTTE 2022, Trento, Italy, October 17-18, 2022, Revised Selected Papers, volume 13800 of Lecture Notes in Computer Science, pages 1–19. Springer, 2022.

[13] Shizhen Yu, Yifan Dong, Jiuyang Liu, Yong Li, Zhilin Wu, David N. Jansen, and Lijun Zhang. CHA: supporting sva-like assertions in formal verification of chisel programs (tool paper). In Bernd-Holger Schlingloff and Ming Chai, editors, Software Engineering and Formal Methods - 20th International Conference, SEFM 2022, Berlin, Germany, September 26-30, 2022, Proceedings, volume 13550 of Lecture Notes in Computer Science, pages 324–331. Springer, 2022.

[14] Yong Li, Andrea Turrini, Weizhi Feng, Moshe Y. Vardi, and Lijun Zhang. Divide-and-conquer determinization of büchi automata based on SCC decomposition. In Sharon Shoham and Yakir Vizel, editors, Computer Aided Verification - 34th International Conference, CAV 2022, Haifa, Israel, August 7-10, 2022, Proceedings, Part II, volume 13372 of Lecture Notes in Computer Science, pages 152–173. Springer, 2022.

[15] Chen Fu, Ernst Moritz Hahn, Yong Li, Sven Schewe, Meng Sun, Andrea Turrini, and Lijun Zhang. EPMC gets knowledge in multi-agent systems. In Bernd Finkbeiner and Thomas Wies, editors, Verification, Model Checking, and Abstract Interpretation - 23rd International Conference, VMCAI 2022, Philadelphia, PA, USA, January 16-18, 2022, Proceedings, volume 13182 of Lecture Notes in Computer Science, pages 93–107. Springer, 2022.

[16] Yong Li, Yih-Kuen Tsay, Andrea Turrini, Moshe Y. Vardi, and Lijun Zhang. Congruence Relations for Büchi Automata. In Proceedings of the 24th International Symposium on Formal Methods, FM 2021, volume 13047 of Lecture Notes in Computer Science, pages 465–482. Springer, 2021.

[17] Yong Li, Andrea Turrini, Moshe Y. Vardi, and Lijun Zhang. Synthesizing Good-Enough Strategies for LTLf Specifications. In Proceedings of the Thirtith International Joint Conference on Artificial Intelligence, IJCAI 2021, pages 4144–4151. ijcai.org, 2021.

[18] Yong Li, Yu-Fang Chen, Lijun Zhang, and Depeng Liu. A Novel Learning Algorithm for Büchi Automata Based on Family of DFAs and Classification Trees. Inf. Comput., 2020.

[19] Weizhi Feng, Cheng-Chao Huang, Andrea Turrini, and Yong Li. Modelling and Implementation of Unmanned Aircraft Collision Avoidance. In Dependable Software Engineering: Theories, Tools, and Applications - Sixth International Symposium, SETTA 2020, Guangzhou, China, November 24-28, 2020, Proceedings, 2020.

[20] Xie Li, Yi Li, Yong Li, Xuechao Sun, Andrea Turrini, and Lijun Zhang. SVMRanker: A General Termination Analysis Framework of Loop Programs via SVM. In Proceedings of the ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering, ESEC/SIGSOFT FSE 2020, Sacramento, USA, November 8-13, 2020, 2020.

[21] Yong Li, Moshe Y. Vardi, and Lijun Zhang. On the Power of Unambiguity in Büchi Complementation. In Games, Automata, Logics, and Formal Verification - Eleventh International Symposium, GandALF 2020, Brussels, Belgium, September 21-23, 2020, Proceedings, pages 182–198, 2020.

[22] Yong Li, Andrea Turrini, Xuechao Sun, and Lijun Zhang. Proving Non-Inclusion of Büchi Automata based on Monte Carlo Sampling. In Automated Technology for Verification and Analysis - 18th International Symposium, ATVA 2020, Hanoi, Vietnam, October 19-23, 2020, Proceedings, 2020.

[23] *Suguman Bansal, Yong Li, Lucas M. Tabajara, and Moshe Y. Vardi. Hybrid compositional reasoning for reactive synthesis from finite-horizon specifications. In The Thirty-Fourth AAAI Conference on Artificial Intelligence, AAAI 2020, New York, NY, USA, February 7-12, 2020, pages 9766–9774, 2020.

[24] Yi Li, Xuechao Sun, Yong Li, Andrea Turrini, and Lijun Zhang. Synthesizing Nested Ranking Functions for Loop Programs via SVM. In Formal Methods and Software Engineering - 21st International Conference on Formal Engineering Methods, ICFEM 2019, Shenzhen, China, November 5-9, 2019, Proceedings, pages 438–454, 2019.

[25] Yong Li, Xuechao Sun, Andrea Turrini, Yu-Fang Chen, and Junnan Xu. ROLL 1.0: ω-Regular Language Learning Library. In Tools and Algorithms for the Construction and Analysis of Systems - 25th International Conference, TACAS 2019, Held as Part of the European Joint Conferences on Theory and Practice of Software, ETAPS 2019, Prague, Czech Republic, April 6-11, 2019, Proceedings, Part I, pages 365–371, 2019.

[26] Yong Li, Andrea Turrini, Yu-Fang Chen, and Lijun Zhang. Learning Büchi Automata and Its Applications. In Engineering Trustworthy Software Systems - 4th International School, SETSS 2018, Chongqing, China, April 7-12, 2018, Tutorial Lectures, pages 38–98, 2018.

[27] Yu-Fang Chen, Matthias Heizmann, Ondrej Lengál, Yong Li, Ming-Hsien Tsai, Andrea Turrini, and Lijun Zhang. Advanced automata-based algorithms for program termination checking. In Proceedings of the 39th ACM SIGPLAN Conference on Programming Language Design and Implementation, PLDI 2018, Philadelphia, PA, USA, June 18-22, 2018, pages 135–150, 2018.

[28] Matthias Heizmann, Yu-Fang Chen, Daniel Dietsch, Marius Greitschus, Jochen Hoenicke, Yong Li, Alexander Nutz, Betim Musa, Christian Schilling, Tanja Schindler, and Andreas Podelski. Ultimate Automizer and the Search for Perfect Interpolants - (Competition Contribution). In Tools and Algorithms for the Construction and Analysis of Systems - 24th International Conference, TACAS 2018, Held as Part of the European Joint Conferences on Theory and Practice of Software, ETAPS 2018, Thessaloniki, Greece, April 14-20, 2018, Proceedings, Part II, pages 447–451, 2018.

[29] Yong Li, Andrea Turrini, Lijun Zhang, and Sven Schewe. Learning to Complement Büchi Automata. In Verification, Model Checking, and Abstract Interpretation - 19th International Conference, VMCAI 2018, Los Angeles, CA, USA, January 7-9, 2018, Proceedings, pages 313–335, 2018.

[30] Yong Li, Yu-Fang Chen, Lijun Zhang, and Depeng Liu. A Novel Learning Algorithm for Büchi Automata Based on Family of DFAs and Classification Trees. In Tools and Algorithms for the Construction and Analysis of Systems - 23rd International Conference, TACAS 2017, Held as Part of the European Joint Conferences on Theory and Practice of Software, ETAPS 2017, Uppsala, Sweden, April 22-29, 2017, Proceedings, Part I, pages 208–226, 2017.

[31] Yong Li, Wanwei Liu, Andrea Turrini, Ernst Moritz Hahn, and Lijun Zhang. An Efficient Synthesis Algorithm for Parametric Markov Chains Against Linear Time Properties. In Dependable Software Engineering: Theories, Tools, and Applications - Second International Symposium, SETTA 2016, Beijing, China, November 9-11, 2016, Proceedings, pages 280–296, 2016.

[32] Yong Li, Lei Song, Yuan Feng, and Lijun Zhang. Verify LTL with Fairness Assumptions Efficiently. In 23rd International Symposium on Temporal Representation and Reasoning, TIME 2016, Kongens Lyngby, Denmark, October 17-19, 2016, pages 41–50, 2016.

[33] Tom van Dijk, Ernst Moritz Hahn, David N. Jansen, Yong Li, Thomas Neele, Mariëlle Stoelinga, Andrea Turrini, and Lijun Zhang. A Comparative Study of BDD Packages for Probabilistic Symbolic Model Checking. In Dependable Software Engineering: Theories, Tools, and Applications - First International Symposium, SETTA 2015, Nanjing, China, November 4-6, 2015, Proceedings, pages 35–51, 2015.