

Curriculum Vitae

Naujun Zhan

Short Bio

Dr. Naujun Zhan is a research professor at State Key Lab. of Computer Science, Institute of Software Chinese Academy of Sciences (ISCAS). Currently, he is the executive director of the State Key Lab. of Computer Sciences, ISCAS. He got PhD in computer science from ISCAS in 2000, and Ms.c in computer science and Bs.c in mathematical logic both from Nanjing University in 1996 and in 1993 respectively. Prior to join Institute of Software, Chinese Academy of Sciences, he worked as a post-doc research assistant at Faculty of Mathematics and Informatics, University of Mannheim, Germany from 2001 to 2004. He is a distinguished professor of Chinese Academy of Sciences (since 2015), the winner of Outstanding Youth Fund of Natural Science Foundation of China (2016), the winners of Excellent Supervisors of the Graduate Students of Chinese Academy of Sciences in 2014, in 2019 and in 2020, respectively.

EDUCATION

9.1997- 7.2000

PhD in Computer Science from Institute of Software, Chinese Academy of Sciences, and International Institute for Software and Technology, supervised by Prof. Zhou Chaochen. The title of PhD thesis is “A higher-order duration calculus and its applications”.

9.1993-7.1996

M.Sc. in Computer Science from Department of Computer Science and Technology, Nanjing University, supervised by Prof. Xu Yongseng. The title of M.Sc. thesis is “Defining denotational semantics of Transframe — an object-oriented programming language with π -calculus”.

9.1989-7.1993

B.Sc. in Mathematical Logic from Department of Mathematics, Nanjing University.

WORKING EXPERIENCE

- 12.2021-** Executive Director of State Key Lab. of Computer Science, Institute of Software, Chinese Academy of Sciences.
- 01.2015-** Professor of University of Chinese Academy of Sciences.
- 01.2016-** Distinguished professor of Chinese Academy of Sciences.
- 10.2008-** Research professor at State Key Lab. of Computer Science, Institute of Software, Chinese Academy of Sciences, the deputy director of State Key Lab. of Computer Science (since 2013).
- 9.2004-9.2008** Associate research professor at State Key Lab. of Computer Science, Institute of Software, Chinese Academy of Sciences.
- 2.2011-3.2011,4.2013-6.2013** Visiting professor at the Department of Computer Science, University of New Mexico, USA.
- 9.2006-11.2006,9.2007-11.2007,8.2009-11.2009,2011.8-2011.9,1.2013-2.2013** Senior visitor at the International Institute for Software Technology, the United Nations University, Macau.
- 8.2012** Visiting professor at the Department of Computer Science, Teesside University, UK.
- 12.2011** Visiting professor at the Department of Computer Science, Denmark Technical University, Denmark.
- 8.2010,7.2012** Visiting professor at the School of Physics and Mathematics, Nanyang Technological University, Singapore.

10.2008,8.2009 Visiting professor at Institute of Mathematics and Informatics, Bulgarian Academy of Sciences

5.2001-7.2004 Research fellow at Faculty of Mathematics and Computer Science, University of Mannheim, Germany.

7.1998-8.1999,5.2000-7.2000 Visiting fellow at the International Institute for Software Technology, the United Nations University, Macau.

CURRENT RESEARCH INTERESTS

- Software engineering, including component-based software engineering and object-oriented programming.
- Formal Methods, including formal design of real-time and hybrid systems, program verification, formal semantics, concurrent computation models, verification and design calculi, model checking, process algebra, modal and temporal logics etc.

ACADEMIC ACTIVITIES

- Editorial Boards of **Formal Aspects of Computing**, **Journal of Logical and Algebraic Methods in Programming**, **Journal of Software**, **Chinese Journal of Electronics** and **Computer Research and Development**;
- The steering committee chair of SETTA (Symposium on Dependable Software Engineering: Theories, Tools and Applications); member of the steering committee of MEMOCODE (ACM-IEEE International Conference on Formal Methods and Models for System Design);
- Members of ACM, EACSL, FME, and ASL, and a distinguished member of CCF;
- The PC co-chair and organization chair of FM 2021, the general co-chairs of MEMOCODE 2018, MEMOCODE 2019 and ICSS 2019, the PC co-chair of SETTA 2016, the organization chair of ATVA 2006
- PC members:
 - 2023 FM, TACAS
 - 2022 RTSS, HSCC, ICCPS, FORMATS, iFM, TASE, ICFEM, ICTAC, LCA
 - 2021 FM (co-chair), HSCC, ADHS, EMSOFT, TASE
 - 2020 CAV, HSCC, EMSOFT, TTSS, TASE, ICFEM, iFM, SNR
 - 2019 RTSS, EMSOFT, ICFEM, TASE, TAMC, ICSS (general co-chair), iFM, UTP, MEMOCODE (general co-chair)
 - 2018 ATVA, QEST, MEMOCODE (general co-chair), SNR, FAMC
 - 2017 TAMC, SETTA, ICTAC, ICECCS
 - 2016 HSCC, UTP, SETTA (PC co-chair), ICTAC, VSTTE, ATVA, FACS
 - 2015 HSCC, ATVA, TASE, ICECCS, WPHS
 - 2014: HSCC, TAMC, ICTAC, UTP, FACS, TASE, ICECCSEASLLC, FSFMA, VeriSure
 - 2013: ICTAC, ICECCS, HTSS, FACS, FSFMA, RIVF, COMPUTATION TOOLS
 - 2012: ICECCS, ICTAC, RIVF, TIMES, TAMC, TASE, UTP, COMPUTATION TOOLS
 - 2011: KSE, ICFEM, TIMES, COMPUTATION TOOLS
 - 2010: ICTAC, KSE, FACS, UTP
 - 2009: ICTAC, KSE, FACS
 - 2008: ICTAC, HTSS
 - 2007: ICTAC, HTSS
 - 2006: ICECCS

GRANTS

- 2022.1-2026.12** “Knowledge Modeling and Construction for Embedded System IPs”, a grant project funded by Natural Science Foundation of China.
- 2018.1-2022.12** “Automatic theorem proving in program verification: theories, tools and applications”, a key project funded by Natural Science Foundation of China.
- 2017.1-2021.12** “Formal design of complex safety-critical embedded systems”, National Outstanding Youth Fund by Natural Science Foundation of China.
- 2015.1-2016.12** “Consistency checking between different phases in the design of embedded systems, a key project in the context of “Trustworthy Software Plan” initiated and funded by Natural Science Foundation of China.
- 2014.1-2018.12** “Theories and Tools for Dependable Safety Critical Systems, a CAS/NAFEA “International Creative Team” project.
- 2014.1-2018.12** “Construction and QoS of Safety Critical Systems”, a “973” project funded by the Ministry of Science and Technology.
- 1.2012-12.2015** “Theories, Tools and Development Environment for Spacecraft Embedded Systems”, a grand project in the context of “Trustworthy Software Plan” initiated and funded by Natural Science Foundation of China.
- 9.2009-8.2014** Outstanding youth fund of Institute of Software, Chinese Academy of Sciences.
- 2009.1-2012.12** “Refinement, Coordination and Glue of Software Components”, funded by Natural Science Foundation of China.
- 1.2008-12-2011** “Component-based Methods for Embedded Systems”, a key project of Natural Science Foundation of China.
- 2008.1-2010.12** “Verification and Analysis of Embedded Software Based on Computer Algebra”, a key project in the context of “Trustworthy Software Plan” initiated and funded by Natural Science Foundation of China.
- 10.2005-9.2008** “Applying Symbolic Computation Approach to Formal Methods”, funded by Natural Science Foundation of China.
- 11.2004-10.2007** “Innovative Group on Formal Methods”, headed by Prof. Lin Huimin, funded by Natural Science Foundation of China.
- 2008.1-2011.12** “Component-based Design, Verification, Analysis and Tools for Dependable Embedded Systems”, a key project of Natural Science Foundation of China.

HONOURS:

- The winners of excellent graduate supervisors of Chinese Academy of Sciences (in 2014, in 2019, and in 2020)
- The winner of National Outstanding Youth Fund (in 2016)
- The distinguished professor of Chinese Academy of Sciences (since 2016)
- The winner of CVIC SE Prize (in 2014)

PUBLICATIONS

- Books, book chapters and edited volumes
 1. Chaochen Zhou and **Naijun Zhan**: Introduction to Formal Semantics, Academic Press. 2017. (in Chinese)
 2. **Naijun Zhan**, Shuling Wang, Hengjun Zhao and Liang Zou: Formal Verification of Simulink/Stateflow Diagrams, Springer-Verlag, 2016.

3. Marieke Huisman, Corina S. Pasareanu, Naijun Zhan (2021): Formal Methods - 24th International Symposium, FM 2021, Virtual Event, November 20-26, 2021, Proceedings. Lecture Notes in Computer Science 13047, Springer 2021, ISBN 978-3-030-90869-0. (Editor)
 4. Partha S. Roop, Naijun Zhan, Sicun Gao, Pierluigi Nuzzo (2019): Proceedings of the 17th ACM-IEEE International Conference on Formal Methods and Models for System Design, MEMOCODE 2019, La Jolla, CA, USA, October 9-11, 2019. ACM 2019, ISBN 978-1-4503-6997-8. (Editor)
 5. Cliff Jones, Ji Wang, **Naijun Zhan** (2018): Symposium on Real-time and Hybrid Systems in Honor of Prof. Chaochen Zhou's 80th Birthday. **Lecture Notes in Computer Science** 11180, 2018, ISBN 978-3-030-01460-5. (Editor)
 6. Martin Fränzle, Deepak Kapur, **Naijun Zhan** (2016): Dependable Software Engineering: Theories, Tools, and Applications - Second International Symposium, SETTA 2016, Beijing, China, November 9-11, 2016, Proceedings. **Lecture Notes in Computer Science** 9984, 2016, ISBN 978-3-319-47676-6. (Editor)
 7. Mingshuai Chen, Xiao Han, Tao Tang, Shuling Wang, Mengfei Yang, **Naijun Zhan**, Hengjun Zhao, Liang Zou (2017): MARS: A Toolchain for Modelling, Analysis and Verification of Hybrid Systems. *Provably Correct Systems 2017*: 39-58
 8. Mengfei Yang and **Naijun Zhan**: Combining Formal and Informal Methods in the Design of Spacecrafts. In SETSS 2014, **Lecture Notes in Computer Science** 9506, Springer-Verlag. 2016.
 9. **Naijun Zhan**, Shuling Wang and Hengjun Zhao: Formal Modelling, Analysis and Verification of Hybrid Systems. In the Theories of Programming, **Lecture Notes in Computer Science** 8050:207-281, Springer-Verlag. 2013.
 10. Martin Frnzle, Deepak Kapur, Heike Wehrheim, Naijun Zhan (2019): Formal Aspects Comput. 31(1), special issue on SETTA 2016.
 11. Arvind Easwaran, Qi Zhu, Naijun Zhan (2021): Journal of Systems Architecture, 116, special Issue on ICSS 2019
- Articles in journals
 1. X. Xu, B. Zhan, S. Wang, J.-P. Talpin and **Naijun Zhan** (2022): A denotational semantics of Simulink with higher-order UTP. **Journal of Logical and Algebraic Methods in Programming**, in press.
 2. T. Yang, S. Wang, B. Zhan, **N. Zhan**, J. Li, S. Xiang, Z. Xiang, B. Mao (2022): Formal Analysis of 5G AKMA. **Journal of System Architecture**, in press.
 3. X. Xu, B. Zhan, S. Wang, J.-P. Talpin and **Naijun Zhan** (2022): Semantics Foundation for Cyber-Physical Systems Using Higher-Order UTP. **ACM Transactions on Software Engineering and Methodology**, in press.
 4. X. Xu, B. Zhan, S. Wang, X. Jin, J.-P. Talpin and **Naijun Zhan** (2022): Unified graphical co-modeling, analysis and verification of cyber-physical systems by combining AADL and Simulink/Stateflow. **Theoretical Computer Science**, 903:1-25.
 5. Jie An, Bohua Zhan, **Naijun Zhan** and Miaomiao Zhang (2021): Learning Nondeterministic Real-Time Automata, **ACM Transaction on Embedded Computing Systems**, Article 7:1-25, special issue of EMSOFT 2021, 20(5s) 99:1-99:26 (2021).
 6. Wenyong Liu, Yunjun Bai, Li Jiao, Bai Xue and **Naijun Zhan** (2021): Safety Guarantee for Time-Delay Systems with Disturbances by Control Barrier Functionals. **Science China Information Science**, in press.
 7. Xiangyu Jin, Jie An, Bohua Zhan, **Naijun Zhan** and Miaomiao Zhang (2021): Inferring Nonlinear Switched Dynamical Systems. **Formal Aspects of Computing**, 33(3): 385-406.

8. Yunjun Bai, Ting Gan, Li Jiao, Bican Xia, Bai Xue and **Naijun Zhan** (2021): Switching Controller Synthesis for Time-delayed Hybrid Systems. **Science China Mathematica**, 51(1):97-114. (in Chinese) [J5]. Bai Xue, Qiuye Wang, **Naijun Zhan**, Shijie Wang and Zhikun She (2021): Synthesizing robust domains of attraction for state-constrained perturbed polynomial systems. **SIAM J. on Control and Optimization**, 59(2): 1083-1108
9. Bai Xue and **Naijun Zhan** (2021): Robust Invariant Sets Computation for Discrete-Time Perturbed Nonlinear Systems. **IEEE Transactions on Automatic Control**, DOI: 10.1109/TAC.2021.3063315
10. Bai Xue, Martin Frnzle, **Naijun Zhan**, Sergiy Bogomolov and Bican Xia (2020): Safety Verification for Random Ordinary Differential Equations. **IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems**,39(11):4090-4101. (Special issue of EMSOFT 2020)
11. Mingshuai Chen, Martin Fraenzle, Yangjia Li, Peter N. Mosaad and **Naijun Zhan** (2020): Indecision and delays are the parents of failure ? Taming them algorithmically by synthesizing delay-resilient control. **Acta Informatica**, 58(5): 497-528. [J9]. Bai Xue, Qiuye Wang, Shenghua Feng and **Naijun Zhan** (2020): Over- and Under-Approximating Reach Sets for Perturbed Delay Differential Equations. **IEEE Transactions on Automatic Control**, 66(1): 283-290.
12. Jie An, Lingtai Wang, Bohua Zhan, **Naijun Zhan** and Miaomiao Zhang (2020): Learning real-time automata. **Science China Information Science**, 64:192103:1?192103:17.
13. Jian Wang, Jie An, Mingshuai Cheng, **Naijun Zhan**, Lulin Wang, Miaomiao Zhang, and Ting Gan (2020): From model to implementation: A network algorithm programming language. **Science China Information Science**, 63(7):172102:1?172102:17.
14. Gaogao Yan, Li Jiao, Shuling Wang, Lingtai Wang and **Naijun Zhan** (2020): Automatically generating SystemC code from HCSP formal mdoels. **ACM Transactions on Software Engineering and Methodology**, 29(1), Article 4:1-39. (Extended version of FM 2016 paper)
15. Bai Xue, Martin Fraenzle and **Naijun Zhan** (2020): Inner approximating reachable sets for polynomial systems with time-varying uncertainties. **IEEE Transactions on Automatic Control**, 65(4):1468-1483.
16. LingtaiWang, **Naijun Zhan** and Jie An (2018)?The opacity of real-time automata. **IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems**, 37(11): 2845-2856. (Special issue of EMSOFT 2018)
17. Ting Gan, Mingshuai Chen, Yangjia Li, Bican Xia and **Naijun Zhan** (2018): Reachability analysis for solvable dynamical systems. **IEEE Transaction on Automatic Control**, 63(7):2003-2018.
18. Shuling Wang, **Naijun Zhan** and Lijun Zhang (2017): A compositional modelling and verification framework for stochastic hybrid systems. **Formal Aspects of Computing**, 29:751-775. (Special issue of SETTA 2015)
19. Qiuye Wang, Yangjia Li, Bican Xia and **Naijun Zhan** (2017): Generating semi-algebraic invariants for non-autonomous hybrid systems. **Journal of System Science and Complexity**, 30(1):234-252.
20. Shuling Wang, Hanne Nielson, Flemming Nielson and **Naijun Zhan** (2016): Modelling and Verifying Dependability of Hybrid Systems in HCSP. **Computer Journal**, 60(8):1111-1130.
21. Liyun Dai, Ting Gan, Bican Xia and **Naijun Zhan** (2017): Barrier certificate revisited. **Journal of Symbolic Computation**, 80:62-86.
22. Ehsan Ahmad, Yunwei Dong, Brian Larsen, Jidong Lv, Tao Tang and **Naijun Zhan** (2015): Behavior modeling and verification of movement authority scenario of Chinese Train Control System using AADL Behavior modeling and verification of movement authority scenario

- of Chinese Train Control System using AADL. **Science China Information Sciences**, 58(11):1-20.
23. Danqing Guo, Jidong Lv, Shuling Wang, Tao Tang, **Naijun Zhan**, Datian Zhou and Liang Zou (2015): Formal analysis and verification of Chinese Train Control System. **Science China Information Sciences** 45(3):417-438 (in Chinese).
 24. Jiang Liu, Ming Xu, **Naijun Zhan** and Hengjun Zhao (2014): Discovering non-terminating inputs for polynomial programs. **Journal of System Science and Complexity**, 27(6):1286-1304.
 25. Yang Gao, Ming Xu, **Naijun Zhan** and Lijun Zhang: Model-checking Conditional CSL for Continuous-time Markov Chains. **Information Processing Letters**, 113(1-2):44-50, 2013.
 26. Jiang Liu, **Naijun Zhan**, and Hengjun Zhao: Automatically discovering relaxed Lyapunov functions for polynomial dynamical systems. **Mathematics in Computer Science**, 6:395-408, 2012.
 27. Bican Xia, Lu Yang, **Naijun Zhan** and Zhihai Zhang: Symbolic decision procedure for termination. **Formal Aspects of Computing**, 23(2):171-190, 2011. DOI: 10.1007/s00165-009-0144-5.
 28. Qiwen Xu and **Naijun Zhan** (2010): Rate Monotonic Scheduling Re-analyzed. **Information Processing Letters**, 110(6): 226-231. DOI: 10.1016/j.ipl.2009.12.010
 29. **Naijun Zhan** (2010): Connection between algebraical and logical approaches to concurrent systems. **Mathematical Structures in Computer Science**, 20(5):915-950.
 30. Yang Lu, Chaochen Zhou, **Naijun Zhan** and Bican Xia (2010): Recent advances in program verification through computer algebra. **Frontiers of Computer Science in China**, 4(1):1-16.
 31. **Naijun Zhan** and Mila Majster-Cederbaum (2010): On hierarchically developing reactive systems. **Information and Computation**, 208(9):997-1019.
 32. Zhenbang Chen, Zhiming Liu, Volker Stolz, Anders P. Ravn, and **Naijun Zhan** (2009): Refinement and verification in component based and model driven design. **Science of Computer Programming**, 74(4):168-196.
 33. Xu Qiwen and **Naijun Zhan** (2008): Formalizing scheduling theorems using duration calculus. **Nordic Journal of Computing**, 14:173- 201.
 34. Jian Zhang, Wenhui Zhang, **Naijun Zhan**, Yidong Shen, Haiming Chen, Yunquan Zhang, Yongji Wang, Enhua Wu, Hongan Wang, and Xueyang Zhu (2008): Basic research in computer science and software engineering at SKLCS. **Frontiers of Computer Science in China**, 2(1): 1-11.
 35. **Naijun Zhan** (2004): *Compositional properties of sequential processes*. **Electronic Notes in Theoretical Computer Science**, 118:111-128.
 36. **Naijun Zhan** (2001): A higher-order duration calculus and its completeness. **Science China**, Vol 30(5).
 37. **Naijun Zhan** (2001): An intuitive formal proof for deadline driven scheduler. **Journal of Computer Science and Technology**, 16(2):146-158.
- Peer reviewed conference papers
 1. Bai Xue, Qiuye Wang, Naijun Zhan, Martin Frnzle, Shenghua Feng (2022): Differential Games Based on Invariant Sets Generation. Accepted by ACC 2022.
 2. Tengshun Yang, Shuling Wang, Bohua Zhan, **Naijun Zhan**, Jinghui Li, Shuangqing Xiang, Zhan Xiang and Bifei Mao (2021): Formal Analysis of 5G AKMA. In Proc. of SETTA 2021, Lecture Notes in Computer Science 13071, pp.102-121.
 3. Bai Xue, Yunjun Bai, **Naijun Zhan**, Wenyong Liu and Li Jiao (2021): Reach-Avoid Analysis for Delay Differential Equations. Accepted by CDC 2021.

4. Jie An, Bohua Zhan, **Naijun Zhan** and Miaomiao Zhang (2021): Learning Nondeterministic Real-Time Automata. Accepted by EMSOFT 2021.
5. Qiuye Wang, Mingshuai Chen, Bai Xue, **Naijun Zhan** and Joost-Pieter Katoen (2021): Synthesizing Invariant Barrier Certificates via Difference-of-Convex Programming, a submitted version and a full version. In Proc. of CAV 2021, Lecture Notes in Computer Science 12759, pp.443-466.
6. Bohua Zhan, Bin Gu, Xiong Xu, Xiangyu Jin, Shuling Wang, Bai Xue, Xiaofeng Li, Yao Chen, Mengfei Yang and **Naijun Zhan** (2021): Modeling and Verification of Descent Guidance Control of Mars Lander. In Proc. of RTAS 2021 (a brief industry paper), pp.457-460.
7. Bai Xue, Renjue Li, **Naijun Zhan**, Martin Frnzle (2021): Reach-avoid Analysis for Stochastic Discrete-time Systems. In Proc. of ACC 2021, pp.4879-4885.
8. Yunjun Bai, Ting Gan, Li Jiao, Bican Xia, Bai Xue and **Naijun Zhan** (2021): Switching Controller Synthesis for Time-delayed Hybrid Systems under Perturbation. In Proc. of HSCC 2021, pp. 3:1-3:11.
9. Bai Xue and **Naijun Zhan** (2020): Probably Approximately Correct Interpolants Generation. In Proc. of SETTA 2020, Lecture Notes in Computer Science, 12153, pp. 143-159.
10. Wei Shen, Jie An, Bohua Zhan, Miaomiao Zhang, Bai Xue and **Naijun Zhan** (2020): PAC learning of deterministic one-clock timed automata. In Proc. of ICFEM 2020, Lecture Notes in Computer Science 12531, pp.129-146.
11. Bai Xue, **Naijun Zhan** and Martin Frnzle (2020): Inner-approximating reach-avoid sets for discrete-time polynomial systems. In Proc. of CDC 2020, pp. 867-873.
12. Bai Xue, Martin Frnzle, **Naijun Zhan**, Sergiy Bogomolov and Bican Xia (2020): Safety Verification for Random Ordinary Differential Equations. In Proc. of EMSOFT 2020, proceedings will be appeared as special issue of IEEE TCAD.
13. Shenghua Feng, Mingshuai Chen, Sriram Sankaranarayanan, Bai Xue and **Naijun Zhan** (2020):Unbounded-time Safety Verification of Stochastic Differential Dynamics. In Proc. of CAV 2020, Lecture Notes in Computer Science 12224, pp.327-348.
14. Ting Gan, Bican Xia, Bai Xue, **Naijun Zhan** and Liyun Dai (2020): Non-linear Interpolant Generation. In Proc. of CAV 2020, Lecture Notes in Computer Science 12225, pp.415-438.
15. Bai Xue, **Naijun Zhan** and Yangjia Li (2020): Robust Regions of Attraction Generation for State-Constrained Perturbed Discrete-Time Polynomial Systems. In Proc. of IFAC 2020.
16. Bai Xue, **Naijun Zhan** and Yangjia Li (2020): A Characterization of Robust Regions of Attraction for Discrete-Time Systems Based on Bellman Equations. In Proc. of IFAC 2020.
17. Jie An, Mingshuai Chen, Bohua Zhan, **Naijun Zhan** and Miaomiao Zhan (2020): Learning one-clock timed automata. In Proc. of TACAS 2020, Lecture Notes in Computer Science 12078, pp.444-462.
18. **Naijun Zhan** (2019): Taming delays in cyber-physical systems. In Proc. of ICFEM 2019, Lecture Notes in Computer Science 11852, pp. xv-xvii. (the extend abstract of an invited talk)
19. Bai Xue, Martin Fraenzle, Hengjun Zhao, **Naijun Zhan** and Arvind Easwaran (2019): Probably Approximate Safety Verification of Hybrid Dynamical Systems. In Proc. of ICFEM 2019, Lecture Notes in Computer Science 11852, pp. 236-252.
20. Stefan Mitsch, Andrew Sogokon, Yong Kiam Tan, Xiangyu Jin, Bohua Zhan, Shuling Wang, **Naijun Zhan** (2019):ARCH-COMP19 Category Report: Hybrid Systems Theorem Proving. ARCH@ CPSIoTWeek 2019: 141-161
21. Haolan Zhan, Qianqian Lin, Shuling Wang, Jean-Pierre Talpin, Xiong Xu and **Naijun Zhan** (2019): Unified Graphical Co-Modelling of Cyber-Physical Systems Using AADL and Simulink/Stateflow. In Proc. of UTP 2019, Lecture Notes in Computer Science 11885, pp. 109-129.

22. Shenghua Feng, Mingshuai Chen, **Naijun Zhan**, Martin Frnzle and Bai Xue (2019): Taming Delays in Dynamical Systems: Unbounded Verification of Delay Differential Equations. In Proc. of CAV 2019, Lecture Notes in Computer Science 11561, pp.650-669.
23. Junyi Liu, Bohua Zhan, Shuling Wang, Shenggang Ying, Tao Liu, Yangjia Li, Mingsheng Ying and **Naijun Zhan** (2019): Formal verification of quantum algorithms using quantum Hoare logic. In Proc. of CAV 2019, Lecture Notes in Computer Science 11562, pp.187-207.
24. Mingshuai Chen, Jian Wang, Jie An, Bohua Zhan, Deepak Kapur and **Naijun Zhan** (2019): NIL: Learning Nonlinear Interpolants. In Proc. of CADE 2019, , Lecture Notes in Computer Science 11716, pp.178-196.
25. Bai Xue, Qiuye Wang, **Naijun Zhan** and Martin Fraenzle (2019): Robust Invariant Sets Generation for State-Constrained Perturbed Polynomial Systems. In Proc. of HSCC 2019, pp. 128-137.
26. Stefan Mitsch, Andrew Sogokon, Yong Kiam Tan, Andr Platzzer, Hengjun Zhao, Xiangyu Jin, Shuling Wang, **Naijun Zhan** (2018): ARCH-COMP18 Category Report: Hybrid Systems Theorem Proving. ARCH@ADHS 2018: 110-127
27. Lingtai Wang, **Naijun Zhan** and Jie An (2018): The opacity of real-time automata. In Proc. of EMSOFT 2018. (Also to appear in the special issue of IEEE TCAD for EMSOFT 2018)
28. Mingshuai Chen, Martin Fraenzle, Yangjia Li, Peter N. Mosad and **Naijun Zhan** (2018): Whats to come is still unsure: Synthesizing synthesizers resilient to delayed reaction. In ATVA 2018, Lecture Notes in Computer Science. (**Distinguished paper awards**)
29. Bai Xue, **Naijun Zhan**, Yangjia Li and Qiuye Wang (2018): Robust Non-termination Analysis of Numerical Software. In Proc. of SETTA 2018, Lecture Notes in Computer Science 10998, pp. 69-88. (**Best paper awards**)
30. Lingtai Wang and **Naijun Zhan** (2018): Decidability of the initial-state opacity of real-time automata. In Proc. of Symposium on Real-time and Hybrid Systems in Honor of Prof. Chaochen Zhou's 80th Birthday, Lecture Notes in Computer Science 11180.
31. Yijun Feng, Joost-Pieter Katoen, Haokun Li, Bican Xia and **Naijun Zhan** (2018): Monitoring CTMCs by multi-clock timed automata. In Proc. of CAV 2018, Lecture Notes in Computer Science.
32. Jie An, **Naijun Zhan**, Xiaoshan Li, Miaomiao Zhang and Wang Yi (2018): Model-checking continuous-time bounded extended linear duration invariants. In Proc. of HSCC 2018, pp.81-90.
33. Bai Xue, Martin Fränzle and **Naijun Zhan** (2018): Under-Approximating Reach Sets for Polynomial Continuous Systems. In Proc. of HSCC 2018, pp.51-60.
34. Dimitar P. Guelev, Shuling Wang, **Naijun Zhan** (2017): Compositional Hoare-Style Reasoning About Hybrid CSP in the Duration Calculus. In Proc. of SETTA 2017, Lecture Notes in Computer Science 10606, pp.110-127.
35. Gaogao Yan, Li Jiao, Shuling Wang and **Naijun Zhan** (2017): Generating SystemC code from delay HCSP. In Proc. of APLAS 2017, Lecture Notes in Computer Science 10695, pp.21-41. (a keynote)
36. Yijun Feng, Lijun Zhang, David N. Jansen, **Naijun Zhan** and Bican Xia (2017): Finding polynomial loop invariants for probabilistic programs, in Proc. of ATVA 2017, Lecture Notes in Computer Science 10484, pp. 400-416.
37. Bai Xue, Peter Nazier Mosaad, Martin Fränzle, Mingshuai Chen, Yangjia Li and **Naijun Zhan** (2017): Safe over- and under-approximation of reachable sets for delay differential equations, in Proc. of FORMATS 2017, Lecture Notes in Computer Science.
38. Gaogao Yan and Li Jiao and Yangjia Li and Shuling Wang and **Naijun Zhan** (2016): Approximate bisimulation and discretization of Hybrid CSP, in Proc. of FM 2016, Lecture Notes in Computer Science 9995, pp.702-720.

39. Mingshuai Chen and Martin Fraenzle and Yangjia Li and Peter N. Mosaad and **Naijun Zhan** (2016): Validated simulation-based verification of delayed differential dynamics, in Proc. of FM 2016, **Lecture Notes in Computer Science** 9995, pp.137-154.
40. Mingshuai Chen, Xiao Han, Tao Tang, Shuling Wang, Mengfei Yang, **Naijun Zhan**, Hengjun Zhao and Liang Zou (2016): MARS: A toolchain for modeling, analysis and verification of hybrid systems, in Proc. of ProCoS 2015.
41. Mingshuai Chen, Anders P. Ravn, Shuling Wang, Mengfei Yang, and **Naijun Zhan** (2016): A two-way path between formal and informal design of embedded systems, in Proc. of UTP 2016.
42. Ting Gan, Mingshuai Chen, Yangjia Li, Bican Xia and **Naijun Zhan** (2016): Computing reachable sets of linear vector fields revisited, in Proc. of ECC 2016.
43. Ting Gan, Liyun Dai, Bican Xia, **Naijun Zhan**, Deepak Kapur and Mingshuai Chen (2016): Interpolant synthesis for quadratic polynomial inequalities and combination with EUF, in Proc. of IJCAR 2016, **Lecture Notes in Computer Science** 9706, pp.195-212.
44. Yu Peng, Shuling Wang, **Naijun Zhan**, Lijun Zhang (2015): Extending Hybrid CSP with Probability and Stochasticity, in Proc. SETTA 2015, **Lecture Notes in Computer Science** 9409, pp.87-102.
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- Selected invited talks

1. Extending Hoare Logic to Hybrid Systems, VSTE 2021, Isaac Newton Institute, Cambridge University, Jun. 7-11, 2021.
2. Practical Verification of Intelligent CPSs, ICMS 2020, TU Braunschweig, Germany, July 13-16, 2020.
3. Non-linear interpolant generation and its application to program verification, FROM 2020, Babes-Bolyai University, Romania, Sept. 4-6, 2020.
4. Formal Analysis, Verification and Design of Safety-Critical CPS (half-day tutorial), RTSS 2020, Houston, USA, Dec. 1st-4th, 2020.
5. Taming Delays in Cyber-Physical Systems, ICTAC 2020, MACAU, China, Nov. 30-Dec.4, 2020.
6. Invariant Generation by Constraint Solving in Verification of Programs and Hybrid, TASE 2020, Hangzhou, China, Dec. 11-13, 2020.
7. Taming Delays in Cyber-Physical Systems, ICFEM 2019, Shenzhen, China, Nov. 5-9 2019.
8. Formal verification of Simulink and Stateflow Models, MathWorks Asia Research Summit, Tokyo, Japan, Sept. 7-8, 2018.
9. Automatically generating SystemC code from HCSP formal models, APLAS 2017, Suzhou, China, Nov. 2017.
10. Invariant-based verification and synthesis for hybrid systems, Summer School on Symbolic Computation, Nanning, Jul. 16-22, 2017.
11. Automatically generating SystemC code from HCSP formal models, SATE 2017, Harbin, 2017.
12. Automatically generating SystemC code from delay HCSP, APLAS 2017, Suzhou, 2017.
13. Automatically generating SystemC code from HCSP formal models, MAVoLS 2017, Beijing, 2017.
14. Formal design of embedded systems, IFIP Working Group 1.9/2.15 & Working Group 2.3 Annual Meeting, Montauban, France, 2016.
15. Formal verification of stochastic differential equations, Workshop on Quantitative Model Checking, Singapore, 2016.
16. Automatic Verification of Time-delay Dynamical Systems, IFIP W.G. 2.2 Scientific Meeting, Singapore, Sept. 12-16, 2016.
17. Modelling and Verification for Stochastic Hybrid Systems, Triangular Decomposition Session of ICIAM 2015, Beijing China, Aug. 10-14, 2015.
18. Model-checking of Duration Calculus, ProCOS Workshop 2015, London, UK, Apr. 9-10, 2015.
19. Formal Verification of Simulink/Stateflow Diagrams (half-day tutorial), ESWEEK 2014, New Delhi, India, Oct. 12-17, 2014.
20. Formal Modelling, Analysis and Verification of Hybrid Systems, tutorial of FACS 2013, Nanchang.
21. Formal Modelling, Analysis and Verification of Hybrid Systems, tutorial of ICTAC 2013, Shanghai.
22. Workshop on Interpolation 2013, St. Petersburg, Russia, July 13-14, 2013.
23. Formal Verification of Simulink Diagrams, PAS 2013, Beijing.
24. An Assume/Guarantee Based Compositional Calculus for Hybrid CSP, TAMC 2012, Beijing.
25. Program Verification by Reduction to Semi-algebraic System Solving, SCTC 2008, Shanghai.

26. Connecting Algebraical and Logical Descriptions of Concurrent Systems, TAMC 2005, Kunming.

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