List of Publications

2024-01-08

Statistics: h-index 8; 3 journal papers and 17 peer-reviewed conference papers in prestigious venues, including the **IEEE Transactions on Computers** and **AAAI Conference on Artificial Intelligence**.

My five most important publications are highlighted in boldface.

Books

1. Nian-Ze Lee. *Stochastic Boolean Satisfiability: Decision Procedures, Generalization, and Applications*. PhD thesis, 2021. doi: 10.6342/NTU202101397.

Journal Papers

1. Dirk Beyer, Nian-Ze Lee, and Philipp Wendler. **Interpolation and SAT-Based Model Checking Revisited: Adoption to Software Verification**. *Journal of Automated Reasoning*, 2023. Accepted, preliminary version available on https://doi.org/10.48550/arXiv.2208.05046.
2. Nian-Ze Lee and Jie-Hong R. Jiang. **Constraint Solving for Synthesis and Verification of Threshold Logic Circuits**. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, 40(5):904–917, 2021. doi: 10.1109/TCAD.2020.3015441.
3. Nian-Ze Lee and Jie-Hong R. Jiang. **Towards Formal Evaluation and Verification of Probabilistic Design**. *IEEE Transactions on Computers*, 67(8):1202–1216, 2018. doi: 10.1109/TC.2018.2807431.

Conference Papers (with published proceedings)

1. Zsófia Ádám, Dirk Beyer, Po-Chun Chien, Nian-Ze Lee, and Nils Sirrenberg. Btor2-Cert: A certifying hardware-verification framework using software analyzers. In *Proceedings of the International Conference on Tools and Algorithms for the Construction and Analysis of Systems*. Springer, 2024. Accepted.
2. Dirk Beyer, Po-Chun Chien, and Nian-Ze Lee. CPA-DF: A tool for configurable interval analysis to boost program verification. In *Proceedings of the IEEE/ACM International Conference on Automated Software Engineering*, pages 2050–2053. IEEE, 2023. doi: 10.1109/ASE56229.2023.00213.
3. Dirk Beyer, Po-Chun Chien, and Nian-Ze Lee. **Bridging Hardware and Software Analysis with BTOR2C: A Word-Level-Circuit-to-C Translator**. In *Proceedings of the International Conference on Tools and Algorithms for the Construction and Analysis of Systems*, LNCS 13994, pages 152–172. Springer, 2023. doi: 10.1007/978-3-031-30820-8_12.
4. Nian-Ze Lee and Jie-Hong R. Jiang. **Dependency Stochastic Boolean Satisfiability: A Logical Formalism for NEXPTIME Decision Problems with Uncertainty**. In *Proceedings of the AAAI Conference on Artificial Intelligence*, pages 3877–3885. AAAI Press, 2021. doi: 10.1609/aaai.v35i5.16506.
5. Jie-Hong R. Jiang, Victor N. Kravets, and Nian-Ze Lee. Engineering change order for combinational and sequential design rectification. In *Proceedings of the Design, Automation & Test in Europe Conference & Exhibition*, pages 726–731. IEEE, 2020. doi: 10.23919/DATE48585.2020.9116504.
6. Siang-Yun Lee, Nian-Ze Lee, and Jie-Hong R. Jiang. Searching parallel separating hyperplanes for effective compression of threshold logic networks. In *Proceedings of the International Conference on Computer-Aided Design*, pages 1–8. ACM, 2019. doi: 10.1109/ICCAD45719.2019.8942143.
7. Nian-Ze Lee, Paolo Arcaini, Shaukat Ali, and Fuyuki Ishikawa. Stability analysis for safety of automotive multi-product lines: A search-based approach. In *Proceedings of the Genetic and Evolutionary Computation Conference*, pages 1241–1249. ACM, 2019. doi: 10.1145/3321707.3321755.
8. Victor N. Kravets, Nian-Ze Lee, and Jie-Hong R. Jiang. Comprehensive search for ECO rectification using symbolic sampling. In *Proceedings of the Annual Design Automation Conference*, pages 71:1–71:6. ACM, 2019. doi: 10.1145/3316781.3317790.
9. Shaukat Ali, Paolo Arcaini, Ichiro Hasuo, Fuyuki Ishikawa, and Nian-Ze Lee. Towards a framework for the analysis of multi-product lines in the automotive domain. In *Proceedings of the International Workshop on Variability Modelling of Software-Intensive Systems*, pages 12:1–12:6. ACM, 2019. doi: 10.1145/3302333.3302345.
10. Akihisa Yamada, Clovis Eberhart, Fuyuki Ishikawa, and Nian-Ze Lee. Scenario sampling for cyber physical systems using combinatorial testing. In *Proceedings of the International Conference on Software Testing, Verification and Validation Workshops*, pages 198–199. IEEE, 2019. doi: 10.1109/ICSTW.2019.00053.

11. Siang-Yun Lee, Nian-Ze Lee, and Jie-Hong R. Jiang. Canonicalization of threshold logic representation and its applications. In *Proceedings of the International Conference on Computer-Aided Design*, pages 85:1–85:8. ACM, 2018. doi: 10.1145/3240765.3240785.
12. Nian-Ze Lee, Yen-Shi Wang, and Jie-Hong R. Jiang. Solving exist-random quantified stochastic Boolean satisfiability via clause selection. In *Proceedings of the International Joint Conference on Artificial Intelligence*, pages 1339–1345. IJCAI Organization, 2018. doi: 10.24963/ijcai.2018/186.
13. Ai Quoc Dao, Nian-Ze Lee, Li-Cheng Chen, Mark Po-Hung Lin, Jie-Hong R. Jiang, Alan Mishchenko, and Robert K. Brayton. Efficient computation of ECO patch functions. In *Proceedings of the Annual Design Automation Conference*, pages 51:1–51:6. ACM, 2018. doi: 10.1145/3195970.3196039.
14. Nian-Ze Lee, Victor N. Kravets, and Jie-Hong R. Jiang. Sequential engineering change order under retiming and resynthesis. In *Proceedings of the International Conference on Computer-Aided Design*, pages 109–116. IEEE, 2017. doi: 10.1109/ICCAD.2017.8203767.
15. Nian-Ze Lee, Yen-Shi Wang, and Jie-Hong R. Jiang. Solving stochastic Boolean satisfiability under random-exist quantification. In *Proceedings of the International Joint Conference on Artificial Intelligence*, pages 688–694. IJCAI Organization, 2017. doi: 10.24963/ijcai.2017/96.
16. Nian-Ze Lee, Hao-Yuan Kuo, Yi-Hsiang Lai, and Jie-Hong R. Jiang. Analytic approaches to the collapse operation and equivalence verification of threshold logic circuits. In *Proceedings of the International Conference on Computer-Aided Design*, pages 5:1–5:8. ACM, 2016. doi: 10.1145/2966986.2967001.
17. Nian-Ze Lee and Jie-Hong R. Jiang. Towards formal evaluation and verification of probabilistic design. In *Proceedings of the International Conference on Computer-Aided Design*, pages 340–347. IEEE, 2014. doi: 10.1109/ICCAD.2014.7001372.

Technical Reports

1. Dirk Beyer, Nian-Ze Lee, and Philipp Wendler. Interpolation and SAT-based model checking revisited: Adoption to software verification. *arXiv/CoRR*, 2208(05046), July 2022. doi: 10.48550/arXiv.2208.05046.
2. Nian-Ze Lee and Jie-Hong R. Jiang. Dependency stochastic Boolean satisfiability: A logical formalism for NEXPTIME decision problems with uncertainty. *arXiv/CoRR*, 1911(04112), February 2021. doi: 10.48550/arXiv.1911.04112.

Submitted Manuscripts

1. Po-Chun Chien and Nian-Ze Lee. CPV: A circuit-based program verifier. 2024. Submitted to the International Conference on Tools and Algorithms for the Construction and Analysis of Systems (Competition Contribution).
2. Dirk Beyer, Po-Chun Chien, Marek Jankola, and Nian-Ze Lee. A replication study of interpolation-based hardware model checking for software verification. 2024. Submitted to the ACM International Conference on the Foundations of Software Engineering.

Reproduction Packages

1. Zsófia Ádám, Dirk Beyer, Po-Chun Chien, Nian-Ze Lee, and Nils Sirrenberg. Reproduction package for TACAS 2024 submission 'Btor2-Cert: A certifying hardware-verification framework using software analyzers'. Zenodo, 2023. doi: 10.5281/zenodo.10013059.
2. Dirk Beyer, Po-Chun Chien, and Nian-Ze Lee. Reproduction package for ASE 2023 article 'CPA-DF: A tool for configurable interval analysis to boost program verification'. Zenodo, 2023. doi: 10.5281/zenodo.8245821.
3. Dirk Beyer, Po-Chun Chien, and Nian-Ze Lee. Reproduction package for TACAS 2023 article 'Bridging hardware and software analysis with BTOR2C: A word-level-circuit-to-C translator'. Zenodo, 2023. doi: 10.5281/zenodo.7551707.
4. Dirk Beyer, Nian-Ze Lee, and Philipp Wendler. Reproduction package for JAR article 'Interpolation and SAT-based model checking revisited'. Zenodo, 2023. doi: 10.5281/zenodo.8245824.
5. Nian-Ze Lee. Reproduction package for doctoral dissertation 'Stochastic Boolean satisfiability: Decision procedures, generalization, and applications'. Zenodo, 2021. doi: 10.5281/zenodo.5084146.