LI HUANG

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EDUCATION

- PhD Student, Software Engineering
  - Chair of Software Engineering, Constructor Institute of Technology
  - November 2020 - Present
  - Advisor: Prof. Bertrand Meyer

- Master, Software Engineering
  - School of Data and Computer Science, Sun Yat-Sen University
  - September 2017 - July 2019
  - Master's Thesis: Tool Supported Verification of (Non)-functional Requirements in Cyber Physical Systems Using Simulink Design Verifier
  - GPA: 94/100
  - Advisors: Associate Prof. Eun-Young Kang, Prof. Zibin Zheng

- Bachelor, Software Engineering
  - School of Data and Computer Science, Sun Yat-Sen University
  - September 2013 - July 2017
  - GPA: 3.9/5.0
  - Bachelor's Thesis: Tool Supported Verification and Validation of Automotive Systems
  - Thesis Advisor: Associate Prof. Eun-Young Kang

RESEARCH EXPERIENCE

- Research Assistant at Sun Yat-Sen University
  - July 2019 - February 2020
  - Tool-supported verification and validation of CPS.
  - Component-based analysis of functional and timing constraints of rigorous CPS using stochastic BIP[1].

TEACHING ASSISTANT

- *Software Construction, Software Architecture, and Software Engineering*, Constructor Institute of Technology, Fall 2022, 2023, 2024.

- *Advances in Software Engineering*, Constructor Institute of Technology, Fall 2023, 2024.

- *Computer Language and Implementation*, Sun Yat-Sen University, School of Data and Computer Science, Software Engineering Institute, Spring 2017, 2018.

- *Computer Language and Implementation*, Sun Yat-Sen University, School of Data and Computer Science, Software Engineering Institute, Spring 2017, 2018.

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[1]http://www-verimag.imag.fr/Rigorous-Design-of-Component-Based.html

- *Introduction to Cyber-Physical Systems: Intelligent Vehicle Software Design*, Sun Yat-Sen University, School of Data and Computer Science, Software Engineering Institute, Spring 2017, 2018.

- *Introduction to Real-Time Systems*, Sun Yat-Sen University, School of Data and Computer Science, Software Engineering Institute, Fall 2017, 2018.

AWARD

- IEEE Real-Time Systems Symposium (RTSS), Hong Kong, Student Travel Grant (2019).

- European Joint Conferences on Theory and Practice of Software (ETAPS), Prague, Czech Republic, Student Scholarship (2019)

- Formal Methods in Computer-Aided Design (FMCAD), University of Texas, Austin, USA, Student Forum Travel Award (2018)

- Chinese National Endeavor Scholarship (3 times, 2013 - 2016)
  - Awarded by Chinese Government (top 5%)
- Excellent Student Scholarship (3 times, top 20% based on GPA, 2013 - 2016)
- Excellent Team in Ke Teng Cup Software Creativity Competition (top 5 teams, 2014)

PUBLICATIONS

1. **Li Huang**, Bertrand Meyer, Manuel Oriol. "Seeding Contradiction: a Fast Method for Generating Full-coverage Test Suites". Accepted in the *Special Issue: Testing Software and Systems: theory and applications, in Springer Nature Computer Science (SNCS)*, October, 2024.

2. **Li Huang**, Bertrand Meyer, Manuel Oriol. "Is MCDC Really Better? Lessons from Combining Tests and Proofs". In the *International Conference on Tests and Proofs (TAP)*, pp. 25-44. 2024.

3. **Li Huang**, Bertrand Meyer, Ilgiz Mustafin, Manuel Oriol. "Execution-Free Program Repair". In the *Companion Proceedings of the International Conference on the Foundations of Software Engineering (FSE-IVR)*, 2024.

5. Bertrand Meyer, Viktoryia Kananchuk, **Li Huang**. "BUGFIX: towards a common language and framework for the Automatic Program Repair community". In the *International Workshop on Automated Program Repair*, pp. 9-13. 2024.

6. **Li Huang**, Bertrand Meyer. "A Failed Proof Can Yield a Useful Test." *Software Testing, Verification and Reliability (STVR)*, 33(7), 2023.

7. **Li Huang**, Bertrand Meyer, Manuel Oriol. "Seeding Contradiction: a Fast Method for Generating Full-coverage Test Suites." In *IFIP International Conference on Testing Software and Systems*, pp. 52-70, 2023

8. **Li Huang**, Bertrand Meyer and Manuel Oriol. "Improving Counterexample Quality from Failed Program Verification." In the *International Symposium on Software Reliability Engineering Workshop (ISSRE-W)*, Charlotte, North Carolina, USA, 2022.

9. **Li Huang**, Sophie Ebersold, Alexander Kogtenkov, Alexandr Naumchev, Bertrand Meyer, Yinling Liu, ALiyu Alege. "Lessons from Formally Verified Deployed Software Systems.", Work-in-progress paper for submission to *ACM Computing Surveys*, available at arxiv.org/abs/2301.02206, 2023.

10. **Li Huang** and Eun-Young Kang. "Work-In-Progress: Formal Analysis of Hybrid-Dynamic Timing Behaviors in Cyber-Physical Systems." In the *The IEEE Real-Time Systems Symposium-Brief Presentation (RTSS-BP)*, Hong Kong, China, December, 2019.

11. **Li Huang**, Tian Liang and Eun-Young Kang. "Formal Verification of Dynamic and Stochastic Behaviors for Automotive Systems." In the *International Conference on Engineering of Complex Computer Systems (ICECCS)*, Guangzhou, China, November, 2019.

12. **Li Huang**, Tian Liang and Eun-Young Kang. "Tool-Supported Analysis of Dynamic and Stochastic Behaviors in Cyber-Physical Systems." In the *International Conference on Software Quality, Reliability, and Security (QRS)*, University of Sofia, Sofia, Bulgaria, July, 2019.

13. **Li Huang** and Eun-Young Kang. "Formal Verification of Safety & Security Related Timing Constraints for A Cooperative Automotive System." In the *European Joint Conferences on Theory and Practice of Software (ETAPS-FASE)*, pp. 210-227, Springer, Prague, Czech Republic, April, 2019.

14. **Li Huang** and Eun-Young Kang. "SMT-based Probabilistic Analysis of Timing Constraints in Cyber-Physical Systems." In the *Formal Methods in Computer-Aided Design (FMCAD) Student Forum*, University of Texas, Austin, USA, October, 2018.

15. Eun-Young Kang and **Li Huang**. "Probabilistic Analysis of Timing Constraints in Autonomous Automotive Systems using Simulink Design Verifier." In the *International Symposium on Dependable Software Engineering Theories, Tools and Applications (SETTA)*, pp. 170-186, Springer, Beijing, China, September 2018.

16. Eun-Young Kang, Dongrui Mu, and **Li Huang**. "Probabilistic Verification of Timing Constraints in Automotive Systems using UPPAAL-SMC." In the *International Conference on Integrated Formal Methods (IFM)*, pp. 236-254, Springer, Maynooth, Ireland, September 2018.

17. Eun-Young Kang, **Li Huang**, and Dongrui Mu. "Formal Verification of Energy and Timed Requirements for a Cooperative Automotive System." In the *ACM/SIGAPP Symposium On Applied Computing in Software Engineering (SAC)*, pp. 1492-1499, ACM, Pau, France, April 2018.

18. Eun-Young Kang, Dongrui Mu, **Li Huang**, and Qianqing Lan. "Verification and Validation of a Cyber-Physical System in the Automotive Domain." In *International Conference on Software Quality, Reliability and Security (QRS)*, pp. 326-333, IEEE, Prague, Czech Republic, July 2017.

19. Eun-Young Kang, Dongrui Mu, **Li Huang** and Qianqing Lan. "Model-Based Analysis of Timing and Energy Constraints in an Autonomous Vehicle System." In *International Conference on Software Quality, Reliability and Security (QRS)*, pp. 525-532, IEEE, Prague, Czech Republic, July 2017.

RESEARCH INTERESTS

- Software engineering, software verification, formal method
- Combination of static and dynamic verification techniques
- Program repair, automatic generation of program fixes