Yuntianyi Chen

Email: yuntianc@uci.edu Homepage: yuntianyi-chen.github.io

EDUCATION

• Ph.D. Candidate in Software Engineering

University of California, Irvine

Donald Bren School of Information and Computer Sciences

• Bachelor of Computer Science and Technology

 $Wuhan\ University \\ School\ of\ Computer \\$

Irvine, CA
Sep 2021 - Present

Wuhan, China Sep 2016 - Jun 2020

Publications

[FSE 2025] Yuntianyi Chen, Yuqi Huai, Yirui He, Shilong Li, Changnam Hong, Qi Alfred Chen, Joshua Garcia. "A Comprehensive Study of Bug-Fix Patterns in Autonomous Driving Systems". Proc. ACM Softw. Eng. 2, FSE (2025).

[FSE 2024] <u>Yuntianyi Chen</u>, Yuqi Huai, Shilong Li, Changnam Hong, Joshua Garcia. "Misconfiguration Software Testing for Failure Emergence in Autonomous Driving Systems". Proc. ACM Softw. Eng. 1, FSE (2024), 1913–1936.

[TSE 2023] Yuqi Huai, Sumaya Almanee, Yuntianyi Chen, Xiafa Wu, Qi Alfred Chen, Joshua Garcia. "scenoRITA: Generating Diverse, Fully Mutable, Test Scenarios for Autonomous Vehicle Planning". IEEE Trans. Software Eng. 49, 10 (2023), 4656–4676.

[ICSE 2023] Yuqi Huai, Yuntianyi Chen, Sumaya Almanee, Tuan Ngo, Xiang Liao, Ziwen Wan, Qi Alfred Chen, Joshua Garcia. "Doppelgänger Test Generation for Revealing Bugs in Autonomous Driving Software". In 45th IEEE/ACM International Conference on Software Engineering, ICSE 2023, Melbourne, Australia, May 14-20, 2023. IEEE, 2591–2603.

[APSEC 2019] Yongfeng Gu, Yuntianyi Chen, Xiangyang Jia, Jifeng Xuan. "Multi-Objective Configuration Sampling for Performance Ranking in Configurable Systems". In 26th Asia-Pacific Software Engineering Conference, APSEC 2019, Putrajaya, Malaysia, December 2-5, 2019. IEEE, 150–157.

[SOFL+MSVL 2019] Yuntianyi Chen, Yongfeng Gu, Lulu He, and Jifeng Xuan. "Regression Models for Performance Ranking of Configurable Systems: A Comparative Study". In Structured Object-Oriented Formal Language and Method - 9th International Workshop, SOFL+MSVL 2019, Shenzhen, China, November 5, 2019. Springer, 243–258.

EXPERIENCE

• Autoware Foundation

Irvine, CA

Collaborating Researcher | Open-Source Developer

Aug 2023 - Present

- Configuration Architecture Refactoring: Contributed to 10% of all refactoring of Autoware ROS nodes. Developed a tool for automated configuration refactoring in Autoware ROS nodes, enabling developers to accelerate their workflow.
- Scenario Record Analyzer: Developed an automated tool to detect 9 types of violations in driving scenario records.
- **DevOps Dojo**: Joined the Autoware Open AD Kit working group for **DevOps Dojo** development, which aims to accelerate optimized hardware and software solutions for autonomous driving.

• Software Aurora (SORA) Lab - University of California, Irvine

Irvine, CA

Graduate Student Researcher

Sep 2021 - Present

- ADS Testing: Conducted foundational research in autonomous driving systems, focusing on scenario generation and configuration testing to detect bug-revealing violations. Developed 4 open-source projects shared with the community.
- Bug-Fix Pattern Benchmark: Open-sourced a benchmark of 1,331 bug-fix instances for bug-fix pattern study in ADSes. Built an interactive tool using Node.js, MongoDB, and TypeScript to enable classification and collaborative labeling.
- SE4ADS Workshop Organization: Helped organize the first international workshop of SE4ADS at ICSE, a top-tier conference in software engineering, promoting discussions on software engineering challenges in autonomous driving systems.
- Centre of Software Testing, Analysis and Reliability (CSTAR) Wuhan University Research Assistant

Wuhan, China Jul 2020 - Jul 2021

- Transfer Learning: Proposed a method that uses the labeled data of other projects to help optimize the target projects through feature-level transfer learning in the performance prediction, which can greatly reduce the data measurement cost.
- Performance Prediction and Optimization: Developed a multi-objective configuration sampling method that optimizes performance ranking while reducing measurement cost, achieving up to 5x reduction in sampling cost.

• A Comprehensive Study of Bug-Fix Patterns in Autonomous Driving Systems

Autonomous Driving Systems | Empirical Software Engineering | Bug-Fix Pattern

Jul 2023 - Sep 2024

- Conducted the first empirical study of bug-fix patterns in autonomous driving systems (ADS), analyzing 1,331 bug fixes
 from two major open-source ADS projects, Apollo and Autoware.
- Introduced a novel taxonomy of 15 syntactic and 27 semantic bug-fix patterns, providing a structured framework for understanding and categorizing ADS bug repairs.
- Developed a modularization granularity **hierarchy**, mapping bug-fix patterns to ADS modules, sub-modules, algorithms, and code statements for systematic debugging and repair.
- Created a public benchmark of 1,331 bug-fix instances, offering researchers and practitioners valuable data for automated bug detection and repair in ADS.

• Misconfiguration Software Testing for Failure Emergence in Autonomous Driving Systems

 $Autonomous\ Driving\ Systems \mid Search-Based\ Software\ Testing \mid Software\ Configuration$

Aug 2022 - Mar 2024

- Developed ConfVE, the first automated configuration testing framework for autonomous driving systems (ADS), enabling the discovery of bug-revealing violations without modifying existing scenario-generation techniques.
- Implemented **9 test oracles** and designed a **multi-objective optimization** genetic algorithm to detect system failures and configuration-induced violations.
- Introduced a duplicate violation eliminator, leveraging an **unsupervised machine learning** approach (i.e., clustering) to minimize redundant failure detections and identify truly unique violations.
- Evaluated ConfVE on Apollo and Autoware ADSes, running 124,950 virtual tests over 990 hours, leading to the discovery of 1,818 unique violations across 9 violation types. Demonstrated superiority over existing approaches, achieving up to a 65.88% improvement in unique violation detection compared to ConfVD and 74.19% reduction in duplicate elimination.

• scenoRITA: Generating Diverse, Fully Mutable, Test Scenarios for Autonomous Vehicle Planning

Autonomous Driving Systems | Search-Based Software Testing | Unsupervised Machine Learning

Dec 2022 - May 20

- o Developed scenoRITA, a **search-based test generation** framework for autonomous vehicle (AV) software that leveraged the evolutionary algorithm and domain-specific constraints for **multi-objective optimization**, ensuring automated scenario generation while dynamically adapting obstacles to expose safety-critical situations.
- Implemented a **novel gene representation**, enabling obstacles to **evolve dynamically**, modifying attributes such as start and end location, type, speed, size, and mobility during test generation.
- Designed 5 test oracles to assess AV safety and comfort violations, covering collision detection, speeding detection, unsafe lane change, fast acceleration, and hard braking.
- Executed 79,051 virtual tests on Baidu Apollo 7.0 using 4 high-definition city maps. Compared with state-of-the-art approaches (AV-FUZZER, AutoFuzz), demonstrating 4.95x to 8.22x more scenario generation efficiency and detecting 1,146 unique violations versus only 7 and 37 from competing techniques.

• Doppelgänger Test Generation for Revealing Bugs in Autonomous Driving Software

Autonomous Driving Systems | Search-Based Software Testing

Jun 2022 - Sep 2022

- Developed DoppelTest, a methodology where **multiple ADS instances** control all vehicles in a scenario, ensuring every violation is caused by ADS misbehavior, making it bug-revealing.
- Designed **smart obstacles**, ensuring traffic rule compliance and defensive driving to eliminate unrealistic, non-bug-revealing violations caused by unintelligent obstacles.
- Discovered **123 bug-revealing violations** in Apollo 7.0, categorized into 8 unique bug types, including failure to recognize slow dynamic obstacles and unsafe lane borrow decisions. Proposed and submitted a fix for one bug type discovered by DoppelTest, which was **accepted by Apollo developers**, demonstrating real-world impact.
- Achieved a 100% bug-revealing rate, compared to baseline random testing, which generated over 1,100 violations but none that exposed actual ADS bugs. Executed 240 hours of testing, demonstrating runtime efficiency, with DoppelTest reducing analysis time by 77.11% compared to prior methods like scenoRITA.

• Multi-Objective Configuration Sampling in Configurable Systems

Multi-objective Optimization | Performance Prediction | Software Configuration

Jun 2019 - Aug 2019

- Developed MoConfig, a **multi-objective** configuration sampling method that optimizes performance ranking in configurable systems by balancing measurement cost and ranking difference. Introduced three alternative objectives to effectively estimate ranking difference without requiring prior performance data, enabling an **unsupervised sampling** approach.
- Conducted experiments on **20** real-world datasets, demonstrating that MoConfig achieves better ranking accuracy while requiring fewer sampled configurations than the baseline.
- Validated MoConfig with four multi-objective optimization algorithms (NSGA-II, eMOEA, IBEA, and DBEA), finding that **NSGA-II** consistently performs well, ensuring reliable ranking predictions.
- Achieved up to **5x reduction in sampling cost**, showing that MoConfig maintains ranking accuracy while significantly lowering computational overhead compared to existing approaches.

• Regression Models for Performance Ranking of Configurable Systems: A Comparative Study

- o Conducted a comparative study on 4 regression methods (CART, SVR, GPR, GBRT) for performance ranking in ${\it configurable systems, evaluating their effectiveness on ~\bf 21} \ {\it evaluation scenarios across} \ {\bf 16} \ {\it real-world systems}.$
- o Demonstrated that CART and GBRT outperform other methods in performance ranking, achieving better minimum actual ranks (MAR) in the majority of scenarios. Showed that SVR and GPR require fewer sampled configurations, reducing the cost of performance ranking but at the expense of ranking accuracy.
- o Implemented an iterative sampling strategy, effectively reducing the number of required performance measurements, leading to up to a 50% reduction in sampling effort compared to exhaustive methods.

Engineering (ESEC/FSE 2023)

Southern California Software Engineering Symposium (SuCSES 2023)

• Student Volunteer

Organization Work & Publicity Chair Workshop on Software Engineering for Autonomous Driving Systems (ICSE-SE4ADS 2025) Workshop Sep 2014 Local Arrangements Chair Workshop of Intelligent Real-time Methods and Technologies of Quality Improvement based on Co-programming Workshop Apr 2021 Program Committee Workshop of Program Committee Member Workshop Artifacts Workshop Sep 2024 Program Committee Member Artifacts Evaluation Artifacts Sep 2024 Program Committee Member Artifacts Sep 2024 Program Committee Member Artifacts Sep 2024 Program Committee Member All IEEE/ACM International Conference on Software Engineering (ICSE 2025) Artifacts Sep 2024 Program Committee Member Artifacts Valuation Artifacts Valuation	SERVICES	
International Workshop on Software Engineering for Autonomous Driving Systems (ICSE-SE4ADS 2025) Sop 2024 Program Committee	Organization	
International Workshop on Software Engineering for Autonomons Driving Systems (ICSE-SE4ADS 2025) Sep 2024 Program Committee Program Committee Member International Workshop on Software Engineering for Autonomons Driving Systems (ICSE-SE4ADS 2025) Sep 2024 Program Committee Member Artifacts Evaluation 15th International Workshop on Software Engineering for Autonomons Driving Systems (ICSE-SE4ADS 2025) Sep 2024 Program Committee Member Artifacts Evaluation 15th International Conference on Software Engineering (ICSE 2025) Artifacts Evaluation 15th International Conference on Software Engineering (ICSE 2025) Artifacts Evaluation 15th International Conference on Software Architecture (ICSA 2024) Artifacts Evaluation 15th International Conference on Software Architecture (ICSA 2024) Artifacts Evaluation 15th International Conference on Software Engineering (ICSE 2025) Artifacts Evaluation 15th International Conference on Software Engineering (ICSE 2024) Artifacts Evaluation 15th International Conference on Software Engineering (ICSE 2025) Artifacts Evaluation 15th International Conference on Software Engineering (ICSE 2025) Artifacts Evaluation 15th International Conference on Software Engineering (ICSE 2025) Artifacts Evaluation 15th International Conference on Software Engineering (ICSE 2025) Artifacts Evaluation 15th International Conference on Software Engineering (ICSE 2025) Artifacts Evaluation 15th International Conference on Software Engineering (ICSE 2025) Artifacts Evaluation 15th International Conference on Software Engineering (ICSE 2025) Artifacts Evaluation 15th International Conference on Software Engineering (ICSE 2024) Artifacts Evaluation 15th International Conference on Software Engineering (ICSE 2025) Artifacts Evaluation 15th International Conference on Software Engineering (ICSE 2025) Artifacts Evaluation 15th International Conference on Software Engineering (ICSE	Web & Publicity Chair	Workshop
Norkshop The Workshop of Intelligent Real-time Methods and Technologies of Quality Improvement based on Co-programming Program Committee Program Committee Member 1 Standardshop on Software Engineering for Autonomous Driving Systems (ICSE-SE4ADS 2025) Sep 2024 Program Committee Member 1 Standardshop on Software Engineering (ICSE 2025) Program Committee Member 1 Standardshop on Software Engineering (ICSE 2025) Program Committee Member 1 Standard Conference on Software Engineering (ICSE 2025) Program Committee Member 2 Standard Conference on Computer and Communications Security (CCS 2024) Program Committee Member 2 Standardshop on Software Architecture (ICSA 2024) Reviewer Reviewe		
Program Committee Member 1st International Workshop on Software Engineering for Autonomous Driving Systems (ICSE-SE4ADS 2025) 6 Program Committee Member 1st International Workshop on Software Engineering for Autonomous Driving Systems (ICSE-SE4ADS 2025) 6 Program Committee Member 1st Act Conference on Software Engineering (ICSE 2025) 7 Program Committee Member 1st Act Conference on Computer and Communications Security (CCS 2024) 8 Artifacts Evaluation 1st ACM Conference on Computer and Communications Security (CCS 2024) 8 Program Committee Member 1st International Conference on Software Architecture (ICSA 2024) 9 Program Committee Member 1st International Conference on Software Architecture (ICSA 2024) 8 Program Committee Member 1st International Conference on Software Engineering (ICSE 2025) 8 Program Committee Member 1st International Conference on Software Engineering (ICSE 2025) 8 Program Committee Member 1st International Conference on Software Engineering (ICSE 2025) 9 Program Committee Member 1st International Vonference on Software Engineering (ICSE 2025) 1st Conference on Software Engineering (ICSE 2025) 1st Conference on Software Engineering on Autonomous Driving Systems (ICSE-SE4ADS 2025) 1st International Workshop on Software Engineering for Autonomous Driving Systems (ICSE-SE4ADS 2025) 1st Acad Transactions on Software Engineering (ICSE 2025) 1st Acad Transactions on Software Engineering (ICSE 2025) 1st Acad Transactions on Software Engineering and Methodology (TOSEM) 1st Acad Conference on Software Engineering and Analysis (ISSTA 2024) 1st Acad Conference on Computer and Communications Security (CCS 2024) 1st Acad Conference on Computer and Communications Security (CCS 2024) 1st Acad Conference on Computer and Communications Security (CCS 2024) 1st Acad Conference on Computer and Communications Security (ICSE 2025) 1st Acad Conference on Software Architecture (ICSA 2024) 1st Acad Conference on Computer and Communications Security (ICSE 2025) 1st Acad Conference on Software Architecture (ICSA 2024)		
Program Committee Member Program Committee		-
Program Committee Member 1st International Workshop on Software Engineering for Autonomous Driving Systems (ICSE-SE4ADS 2025) Sep 2024 Artifacts Evaluation 47th IEEE/ACM International Conference on Software Engineering (ICSE 2025) Sep 2024 Sep 2024 Sep 2025 Sep 2024 Artifacts Evaluation 31st ACM Conference on Computer and Communications Security (ICS 2024) Artifacts Evaluation May 2024 Artifacts Evaluation 21st International Conference on Software Architecture (ICSA 2024) Artifacts Evaluation 21st International Conference on Software Engineering (ICSE 2025) Artifacts Evaluation 21st International Conference on Software Engineering (ICSE 2025) Artifacts Evaluation 21st International Conference on Software Engineering (ICSE 2025) Artifacts Evaluation 31st ACM Transactions on Intelligent Transportation Systems (ICSE 2025) Artifacts Evaluation 31st International Workshop on Software Engineering and Methodology (TOSEM) Dec 2024 Workshop 31st International Workshop on Software Engineering for Autonomous Driving Systems (ICSE-SE4ADS 2025) Nov 2024 Reviewer Journal IEEE Transactions on Software Engineering (TSE) Nov 2024 Reviewer Journal ACM Transactions on Software Engineering and Methodology (TOSEM) Jay 2024 Reviewer Journal ACM Transactions on Software Engineering and Methodology (TOSEM) Jay 2024 Reviewer Journal ACM Transactions on Software Engineering and Methodology (TOSEM) Jay 2024 Reviewer Journal ACM Transactions on Software Engineering and Methodology (TOSEM) Jay 2024 Reviewer Journal ACM Transactions on Software Engineering (TSE) Apr 2024 Artifacts Evaluation 31st ACM Conference on Computer and Communications Security (CCS 2024) Artifacts Evaluation 31st ACM Conference on Computer and Communications Security (CCS 2024) Artifacts Evaluation 11st International Conference on Software Engineering (ICSE 2025) Apr 2024 Artifacts Evaluation 21st International Conference on Software Engineering (ICSE 2025) Apr 2024 Artifacts Eval		2g 11p, 2021
st international Workshop on Software Engineering for Autonomous Driving Systems (ICSE-SE4ADS 2025) • Program Committee Member Arth IEEE/ACM International Conference on Software Engineering (ICSE 2025) • Program Committee Member 31st ACM Conference on Computer and Communications Security (CCS 2024) • Program Committee Member 31st ACM Conference on Software Architecture (ICSA 2024) • Program Committee Member 4 Artifacts Evaluation Custer Security (CCS 2024) • Program Committee Member 5 Reviewer 6 Reviewer 6 Reviewer 7 Reviewer 7 Reviewer 8 Reviewer 8 Reviewer 8 Reviewer 8 Reviewer 8 Reviewer 9 Reviewer 9 Reviewer 1 Artifacts Evaluation Autonomeus Onference on Software Engineering (ICSE 2025) 1 Artifacts Evaluation Autonomeus Onference on Software Engineering (ICSE 2025) 1 Artifacts Evaluation Security (CCS 2024) 1 Artifacts Evaluation Security (CCS 2024) 1 Artifacts Evaluation Security (CCS 2025) 1 Artifacts Evaluation Security (CCS 2025) 2 Reviewer 3 Artifacts Evaluation Security (CCS 2025) 3 Artifacts Evaluation Security (CCS 2025) 4 Reviewer 4 Reviewer 5 Artifacts Evaluation Security (CCS 2025) 5 Reviewer 6 Reviewer 7 Artifacts Evaluation Security (CCS 2024) 8 Reviewer 8 Reviewer 9 Artifacts Evaluation Security (CCS 2024) 8 Reviewer 1 Artifacts Evaluation Security (CCS 2024) 2 Reviewer 3 Artifacts Evaluation Security (CCS 2024) 4 Reviewer 3 Artifacts Evaluation Security (CCS 2024) 5 Reviewer 6 Reviewer 1 Artifacts Evaluation Security (CCS 2024) 1 Artifacts Evaluation Security (CCS 2024) 1 Artifacts Evaluation Security (CCS 2024) 2 Reviewer 3 Artifacts Evaluation Security (CCS 2024) 4 Reviewer 3 Artifacts Evaluation Security (CCS 2024) 5 Reviewer 3 Artifacts Evaluation Security (CCS 2024) 5 Reviewer 3 Artifacts Evaluation Security (CCS 2		Workshop
• Program Committee Member Artifacts Evaluation & Sep 2024 • Program Committee Member Artifacts Evaluation & Sep 2024 • Program Committee Member Artifacts Evaluation & Sep 2024 • Program Committee Member Artifacts Evaluation & May 2024 • Program Committee Member Artifacts Evaluation & Artifacts Evaluation & Mar 2024 • Reviewer • Reviewer • Reviewer Apr 2025 • Reviewer Apr 2025 • Reviewer Apr 2025 • Reviewer Apr 2025 • Reviewer A Journal Act Artifacts Evaluation & Artifacts Evaluati	9	-
### A PUN TEEE / ACM International Conference on Software Engineering (ICSE 2025) Program Committee Member 31st ACM Conference on Computer and Communications Security (CCS 2024) Program Committee Member 21st International Conference on Software Architecture (ICSA 2024) Reviewer Reviewer Reviewer Reviewer Reviewer Reviewer Actifacts Evaluation (ICSA 2024) Reviewer Reviewer Actifacts Evaluation (ICSA 2024) Reviewer Reviewer Actifacts Evaluation (ICSA 2025) Reviewer Actifacts Evaluation (ICSA 2024) Reviewer Actifacts Evaluation		
Program Committee Member May 2024 Program Committee Member Artifacts Evaluation Program Committee Member Artifacts Evaluation Program Committee Member Artifacts Evaluation Reviewer Seviewer Artifacts Evaluation Reviewer Artifacts Evaluation Program Committee Member Artifacts Evaluation Reviewer Artifacts Evaluation Reviewer Artifacts Evaluation Artifacts Evaluation Artifacts Evaluation Program Committee Member Artifacts Evaluation Reviewer Artifacts Evaluation Reviewer Artifacts Evaluation Available Evaluation Available Evaluation Available Evaluation Availa		
8 1st ACM Conference on Computer and Communications Security (CCS 2024) Program Committee Member 21st International Conference on Software Architecture (ICSA 2024) Reviewer Reviewer Restriewer Restriewer Restriewer Restriewer Restriewer Restriewer Restriewer Reviewer Reviewer Reviewer Reviewer Reviewer Reviewer Reviewer Reviewer Reviewer Restriewer Restriewer Reviewer Reviewe		
e Program Committee Member 21st International Conference on Software Architecture (ICSA 2024) Reviewer Artifacts Evaluation Systems (T-ITS) Reviewer Artifacts Evaluation Annual (ICSE 2025) Reviewer Re	-	
Reviewer Rev		
Reviewer Reviewer Reviewer Artifacts Evaluation Artifacts in Reviewer Revi	-	
Reviewer Gurnal IEEE Transactions on Intelligent Transportation Systems (T-ITS) Apr 2025 Reviewer Artifacts Evaluation 47th IEEE/ACM International Conference on Software Engineering (ICSE 2025) Jan 2025 Ace viewer Jan 2025 Reviewer Jan 2025 Reviewer Dec 2024 Workshop on Software Engineering and Methodology (TOSEM) Dec 2024 Reviewer Journal IEEE Transactions on Software Engineering for Autonomous Driving Systems (ICSE-SE4ADS 2025) Nov 2024 Reviewer Journal IEEE Transactions on Software Engineering (TSE) Nov 2024 Reviewer Journal IEEE Transactions on Software Engineering (TSE) Journal IEEE Transactions on Software Engineering and Methodology (TOSEM) Jul 2024 Reviewer Actifacts Evaluation 37th ACM Transactions on Software Engineering and Methodology (TOSEM) Jul 2024 Reviewer Actifacts Evaluation 37th ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA 2024) Artifacts Evaluation 37th ACM Conference on Computer and Communications Security (CCS 2024) Artifacts Evaluation 37th IEEE/ACM International Conference on Software Engineering (ICSE 2025) Apr 2024 Reviewer Artifacts Evaluation 21st International Conference on Software Architecture (ICSA 2024) Artifacts Evaluation 21st International Conference on Robotics and Automation (ICRA 2024) Jul 2024 Reviewer Conference 47th IEEE/ACM International Conference on Robotics and Automation (ICRA 2024) Delegate Reviewer Jul 2024 Reviewer Conference 32th ACM International Conference on Robotics and Automation (ICRA 2024) Conference 32th ACM International Conference on Robotics and Automation (ICRA 2024) Conference 32th ACM International Conference on Robotics and Automation (ICRA 2024) Conference 32th ACM International Conference on Robotics and Automation (ICRA 2024) Conference 32th ACM International Conference on Robotics and Automation (ICRA 2024) Conference 32th ACM International Conference on Robotics and Automation (ICRA 2024) Conference 32th ACM Internat		11141 2024
Reviewer Artifacts Evaluation And Workshop on Software Engineering (ICSE 2025) Reviewer Journal Reviewer Artifacts Evaluation Attifacts Evaluation Actifacts Evaluation Attifacts Evaluation Actifacts Evaluation Actifacts Evaluation Actifacts Evaluation Actifacts Evaluation Actifacts Evaluation Islandarious on Software Engineering for Autonomous Driving Systems (ICSE-SE4ADS 2025) Nove 2024 Reviewer Journal IEEE Transactions on Software Engineering (TSE) Nove 2024 Reviewer Journal Actifacts Evaluation Evaluation Evaluation Conference on Software Architecture (ICSA 2024) Actifacts Evaluation Evaluation Evaluation Evaluation Actifacts Evaluation Evaluation Evaluation Actifacts Evaluation Evaluation Evaluation Evaluation Actifacts Evaluation Evaluat		Journal
• Reviewer Artifacts Evaluation 47th IEDE/ACM International Conference on Software Engineering (ICSE 2025) Iza 2025 • Reviewer Journal ACM Transactions on Software Engineering and Methodology (TOSEM) Dec 2024 • Reviewer Workshop 1st International Workshop on Software Engineering for Autonomous Driving Systems (ICSE-SE4ADS 2025) Nov 2024 • Reviewer Journal 1st International Workshop on Software Engineering (TSE) Nov 2024 • Reviewer Journal ACM Transactions on Software Engineering and Methodology (TOSEM) International Symposium on Software Testing and Analysis (ISSTA 2024) Nov 2024 • External Reviewer Conference 33rd ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA 2024) May 2024 • Reviewer Artifacts Evaluation 31st ACM Conference on Computer and Communications Security (CCS 2024) Artifacts Evaluation 2024 • External Reviewer Artifacts Evaluation 21st International Conference on Software Engineering (ICSE 2025) Artifacts Evaluation 21st International Conference on Software Architecture (ICSA 2024) Mar 2024 • Reviewer Actifacts Engineering 21st International Conference on Robotics and Automation (ICRA 2024) Artifacts Evaluation 21st IEEE International Conference on Robotics and Automation (ICRA 2024) Oct 2023 • Reviewer Conference 32nd ACM International Conference on Robotics and Automation (ICRA 2024) Oct 2023		
• Reviewer • Sith International Symposium on Software Testing and Analysis (ISSTA 2024) • Reviewer • Reviewer • Reviewer • Sith ACM Conference on Computer and Communications Security (CCS 2024) • Reviewer • Lound and Reviewer • Artifacts Evaluation 21st International Conference on Software Architecture (ICSA 2024) • Reviewer • Reviewer • Lound and Conference on Robotics and Automation (ICRA 2024) • Delegate Reviewer • Lound and Conference on Robotics and Automation (ICRA 2024) • External Reviewer • Sub-reviewer • Su		•
Reviewer ACM Transactions on Software Engineering and Methodology (TOSEM) Dec 2024 Reviewer Workshop on Ist International Workshop on Software Engineering for Autonomous Driving Systems (ICSE-SE4ADS 2025) Nov 2024 Reviewer Journal IEEE Transactions on Software Engineering (TSE) Nov 2024 Reviewer Journal ACM Transactions on Software Engineering and Methodology (TOSEM) Jul 2024 External Reviewer Software Engineering and Methodology (TOSEM) Jul 2024 External Reviewer Software Engineering and Methodology (TOSEM) Jul 2024 Reviewer Artifacts Evaluation 31st ACM Conference on Computer and Communications Security (CCS 2024) May 2024 External Reviewer Artifacts Evaluation 31st ACM Conference on Computer and Communications Security (CCS 2024) May 2024 External Reviewer Artifacts Evaluation 31st International Conference on Software Engineering (ICSE 2025) Mar 2024 Reviewer Ath IEEE/ACM International Conference on Software Engineering (ICSE 2025) Mar 2024 Reviewer Journal IEEE Robotics and Automation Letters (RA-L) Jun 2024 Reviewer Journal IEEE Robotics and Automation Letters (RA-L) Jun 2024 External Reviewer Conference on Robotics and Automation (ICRA 2024) Conference 32nd ACM International Conference on Robotics and Automation (ICRA 2024) Oct 2023 External Reviewer Conference on the Foundations of Software Engineering (FSE 2024) Oct 2023 Sub-reviewer Jun 125th IEEE International Conference on the Foundations of Software Engineering (SANER 2020) Nov 2019 Volunteer Student Volunteer Engineering Conference and Symposium on the Foundations of Software Engineering Conference on Software Engineering Conference Data ACM Jun European Software Engineering Conference and Symposium on the Foundations of Software		
ACM Transactions on Software Engineering and Methodology (TOSEM) Reviewer 1 St International Workshop on Software Engineering for Autonomous Driving Systems (ICSE-SE4ADS 2025) Nov 2024 Reviewer 3 Journal IEEE Transactions on Software Engineering (TSE) Reviewer 4 Conference 33rd ACM Transactions on Software Engineering and Methodology (TOSEM) External Reviewer 33rd ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA 2024) Reviewer 33rd ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA 2024) Reviewer 31st ACM Conference on Computer and Communications Security (CCS 2024) Reviewer 4 Reviewer 31st ACM International Conference on Software Engineering (ICSE 2025) Reviewer 4 Reviewer 31st International Conference on Software Architecture (ICSA 2024) Reviewer 4 Reviewer 3 Journal IEEE Robotics and Automation Letters (RA-L) Delegate Reviewer 4 Is IEEE International Conference on Robotics and Automation (ICRA 2024) External Reviewer 3 Sub-reviewer 2 Conference 32nd ACM International Conference on the Foundations of Software Engineering (FSE 2024) Sub-reviewer 20th IEEE International Conference on the Foundations of Software Engineering (SANER 2020) Sub-reviewer 20th IEEE International Conference on Software Architecture (ICSA 2023) Sub-reviewer 20th IEEE International Conference on Software Architecture (ICSA 2023) Sub-reviewer 20th IEEE International Conference on Software Architecture (ICSA 2023) Sub-reviewer 20th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) Nov 2019 Volunteer 5 Student Volunteer 6 Conference 7 Software Engineering Conference and Symposium on the Foundations of Software 8 Test 2024		
• Reviewer 1st International Workshop on Software Engineering for Autonomous Driving Systems (ICSE-SE4ADS 2025) • Reviewer 1EEE Transactions on Software Engineering (TSE) • Reviewer ACM Transactions on Software Engineering and Methodology (TOSEM) • External Reviewer 33rd ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA 2024) • Reviewer 4 Reviewer 31st ACM Conference on Computer and Communications Security (CCS 2024) • External Reviewer 4 Reviewer 5 Artifacts Evaluation 21st International Conference on Software Engineering (ICSE 2025) • Reviewer 4 Reviewer 5 Artifacts Evaluation 21st International Conference on Software Architecture (ICSA 2024) • Reviewer 4 Reviewer 4 Reviewer 5 Journal IEEE Robotics and Automation Letters (RA-L) 5 Delegate Reviewer 4 Seelegate Reviewer 4 Seelegate Reviewer 5 Sub-reviewer 6 Conference 7 Software Engineering (ICSA 2023) 8 Sub-reviewer 7 Software Engineering (SANER 2020) 8 Sub-reviewer 8 Sub-reviewer 9 Journal 9 Journal 10 Software Engineering (SANER 2020) 10 Software Software Engineering (SANER 2020) 10 Software Software Engineering (SANER 2020) 10 Software Software Engineering Conference and Symposium on the Foundations of Software 10 Software Engineering Conference and Symposium on the Foundations of Software		
Reviewer Is International Workshop on Software Engineering for Autonomous Driving Systems (ICSE-SE4ADS 2025) **Reviewer** Reviewer*		
• Reviewer	1st International Workshop on Software Engineering for Autonomous Driving Systems (ICSE-SE4ADS 2025	-
Reviewer Journal ACM Transactions on Software Engineering and Methodology (TOSEM) Jul 20024 • External Reviewer Conference 33rd ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA 2024) May 2024 • Reviewer ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA 2024) Artifacts Evaluation 31st ACM Conference on Computer and Communications Security (CCS 2024) Artifacts Evaluation 31st ACM Start International Conference on Software Engineering (ICSE 2025) Apr 2024 • Reviewer Ath IEEE/ACM International Conference on Software Engineering (ICSE 2025) Apr 2024 • Reviewer Artifacts Evaluation 21st International Conference on Software Architecture (ICSA 2024) Mar 2024 • Reviewer Journal IEEE Robotics and Automation Letters (RA-L) Jan 2024 • Delegate Reviewer Conference A1st IEEE International Conference on Robotics and Automation (ICRA 2024) Oct 2023 • External Reviewer Conference 32nd ACM International Conference on the Foundations of Software Engineering (FSE 2024) Oct 2023 • Sub-reviewer Conference 20th IEEE International Conference on Software Architecture (ICSA 2023) Dec 2022 • Sub-reviewer Journal Conference on Software Analysis, Evolution and Reengineering (SANER 2020) Nov 2019 Volunteer Student Volunteer Conference and Symposium on the Foundations of Software Pages 2029		
• Reviewer ACM Transactions on Software Engineering and Methodology (TOSEM) • External Reviewer Stard ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA 2024) • Reviewer Artifacts Evaluation 31st ACM Conference on Computer and Communications Security (CCS 2024) • External Reviewer Antifacts Evaluation 31st ACM International Conference on Software Engineering (ICSE 2025) • Reviewer Artifacts Evaluation 21st International Conference on Software Architecture (ICSA 2024) • Reviewer 31st International Conference on Software Architecture (ICSA 2024) • Reviewer 4 Reviewer 4 See Reviewer 4 Delegate Reviewer 4 See Reviewer 5 Sub-reviewer 2 Sub-reviewer 2 Sub-reviewer 2 Sub-reviewer 2 Sub-reviewer 3 Tournal 2 The IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) Nov 2019 Volunteer • Student Volunteer 5 Student Volunteer 6 Conference Alst ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software		
*** ACM Transactions on Software Engineering and Methodology (TOSEM) *** External Reviewer 33rd ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA 2024) *** Reviewer 31st ACM Conference on Computer and Communications Security (CCS 2024) *** External Reviewer 47th IEEE/ACM International Conference on Software Engineering (ICSE 2025) *** Reviewer 47th IEEE (And International Conference on Software Engineering (ICSE 2025) *** Reviewer 41st International Conference on Software Architecture (ICSA 2024) *** Reviewer 41st IEEE Robotics and Automation Letters (RA-L) *** Delegate Reviewer 41st IEEE International Conference on Robotics and Automation (ICRA 2024) *** External Reviewer 41st IEEE International Conference on the Foundations of Software Engineering (FSE 2024) *** External Reviewer 32nd ACM International Conference on the Foundations of Software Engineering (FSE 2024) *** Sub-reviewer 20th IEEE International Conference on Software Architecture (ICSA 2023) *** Sub-reviewer 27th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) *** Sub-reviewer 27th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) *** Sub-reviewer 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software 41st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software		
• External Reviewer 33rd ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA 2024) • Reviewer 31st ACM Conference on Computer and Communications Security (CCS 2024) • External Reviewer 47th IEEE/ACM International Conference on Software Engineering (ICSE 2025) • Reviewer 47th IEEE Acode International Conference on Software Architecture (ICSA 2024) • Reviewer 48th IEEE Robotics and Automation Letters (RA-L) 5 Delegate Reviewer 41st IEEE International Conference on Robotics and Automation (ICRA 2024) • External Reviewer 41st IEEE International Conference on Robotics and Automation (ICRA 2024) • External Reviewer 41st IEEE International Conference on Robotics and Automation (ICRA 2024) • External Reviewer 41st IEEE International Conference on the Foundations of Software Engineering (FSE 2024) • External Reviewer 32nd ACM International Conference on the Foundations of Software Engineering (FSE 2024) • Sub-reviewer 20th IEEE International Conference on Software Architecture (ICSA 2023) • Sub-reviewer 27th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) • Sub-reviewer 37th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) • Sub-reviewer 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software	ACM Transactions on Software Engineering and Methodology (TOSEM)	
• Reviewer Artifacts Evaluation 31st ACM Conference on Computer and Communications Security (CCS 2024) Any 2024 • External Reviewer Conference on Software Engineering (ICSE 2025) Apr 2024 • Reviewer Artifacts Evaluation 21st International Conference on Software Architecture (ICSA 2024) Artifacts Evaluation 21st International Conference on Software Architecture (ICSA 2024) Artifacts Evaluation 21st International Conference on Software Architecture (ICSA 2024) Artifacts Evaluation IEEE Robotics and Automation Letters (RA-L) Journal IEEE Robotics and Automation Letters (RA-L) Jan 2024 • Delegate Reviewer Conference on Robotics and Automation (ICRA 2024) Oct 2023 • External Reviewer Conference on Robotics and Automation (ICRA 2024) Oct 2023 • External Reviewer Conference 20th Item International Conference on the Foundations of Software Engineering (FSE 2024) Oct 2023 • Sub-reviewer Conference 20th IEEE International Conference on Software Architecture (ICSA 2023) Dec 2022 • Sub-reviewer Journal 27th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) Nov 2019 Volunteer Student Volunteer Conference and Symposium on the Foundations of Software		
• Reviewer 31st ACM Conference on Computer and Communications Security (CCS 2024) • External Reviewer 47th IEEE/ACM International Conference on Software Engineering (ICSE 2025) • Reviewer 21st International Conference on Software Architecture (ICSA 2024) • Reviewer 1EEE Robotics and Automation Letters (RA-L) • Delegate Reviewer 41st IEEE International Conference on Robotics and Automation (ICRA 2024) • External Reviewer 32nd ACM International Conference on the Foundations of Software Engineering (FSE 2024) • Sub-reviewer 20th IEEE International Conference on Software Architecture (ICSA 2023) • Sub-reviewer 27th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) • Sub-reviewer • Student Volunteer • Student Volunteer • Conference 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Dec 2023 • Dec 2023 • Dec 2023	33rd ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA 2024)	May 2024
• External Reviewer 47th IEEE/ACM International Conference on Software Engineering (ICSE 2025) • Reviewer 21st International Conference on Software Architecture (ICSA 2024) • Reviewer 1 Sournal IEEE Robotics and Automation Letters (RA-L) 1 Delegate Reviewer 2 Delegate Reviewer 3 Delegate Reviewer 4 Stubernal Reviewer 5 Conference 32nd ACM International Conference on Robotics and Automation (ICRA 2024) 6 External Reviewer 3 Software Engineering (FSE 2024) 6 Sub-reviewer 2 Oct 2023 6 Sub-reviewer 3 Sub-reviewer 3 Ununal 27th IEEE International Conference on Software Architecture (ICSA 2023) 6 Sub-reviewer 3 Sub-reviewer 3 Ununal 27th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) 7 Nov 2019 8 Sub-reviewer 4 Student Volunteer 5 Student Volunteer 6 Conference 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software		
• External Reviewer 47th IEEE/ACM International Conference on Software Engineering (ICSE 2025) • Reviewer 21st International Conference on Software Architecture (ICSA 2024) • Reviewer 1 Sournal IEEE Robotics and Automation Letters (RA-L) 1 Delegate Reviewer 2 Delegate Reviewer 3 Delegate Reviewer 4 Stubernal Reviewer 5 Conference 32nd ACM International Conference on Robotics and Automation (ICRA 2024) 6 External Reviewer 3 Software Engineering (FSE 2024) 6 Sub-reviewer 2 Oct 2023 6 Sub-reviewer 3 Sub-reviewer 3 Ununal 27th IEEE International Conference on Software Architecture (ICSA 2023) 6 Sub-reviewer 3 Sub-reviewer 3 Ununal 27th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) 7 Nov 2019 8 Sub-reviewer 4 Student Volunteer 5 Student Volunteer 6 Conference 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software	31st ACM Conference on Computer and Communications Security (CCS 2024)	May 2024
• Reviewer 21st International Conference on Software Architecture (ICSA 2024) • Reviewer IEEE Robotics and Automation Letters (RA-L) • Delegate Reviewer 41st IEEE International Conference on Robotics and Automation (ICRA 2024) • External Reviewer 32nd ACM International Conference on the Foundations of Software Engineering (FSE 2024) • Sub-reviewer 20th IEEE International Conference on Software Architecture (ICSA 2023) • Sub-reviewer 20th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) • Sub-reviewer 27th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) • Student Volunteer • Student Volunteer 20th IEEE International Conference on Software Engineering Conference and Symposium on the Foundations of Software		
• Reviewer 21st International Conference on Software Architecture (ICSA 2024) • Reviewer IEEE Robotics and Automation Letters (RA-L) • Delegate Reviewer 41st IEEE International Conference on Robotics and Automation (ICRA 2024) • External Reviewer 32nd ACM International Conference on the Foundations of Software Engineering (FSE 2024) • Sub-reviewer 20th IEEE International Conference on Software Architecture (ICSA 2023) • Sub-reviewer 20th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) • Sub-reviewer 32nd ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software 32nd ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software	47th IEEE/ACM International Conference on Software Engineering (ICSE 2025)	Apr 2024
• Reviewer IEEE Robotics and Automation Letters (RA-L) • Delegate Reviewer 41st IEEE International Conference on Robotics and Automation (ICRA 2024) • External Reviewer 32nd ACM International Conference on the Foundations of Software Engineering (FSE 2024) • Sub-reviewer 20th IEEE International Conference on Software Architecture (ICSA 2023) • Sub-reviewer 20th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) • Sub-reviewer 27th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) • Student Volunteer • Student Volunteer • Student Volunteer 1 Journal Conference and Symposium on the Foundations of Software		Artifacts Evaluation
IEEE Robotics and Automation Letters (RA-L) Delegate Reviewer 41st IEEE International Conference on Robotics and Automation (ICRA 2024) External Reviewer 32nd ACM International Conference on the Foundations of Software Engineering (FSE 2024) Sub-reviewer 20th IEEE International Conference on Software Architecture (ICSA 2023) Sub-reviewer 27th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) Nov 2019 Volunteer Student Volunteer Student Volunteer 1 Jun 2024 Conference Conference 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software	21st International Conference on Software Architecture (ICSA 2024)	Mar 2024
 Delegate Reviewer 41st IEEE International Conference on Robotics and Automation (ICRA 2024) External Reviewer 32nd ACM International Conference on the Foundations of Software Engineering (FSE 2024) Sub-reviewer	• Reviewer	Journal
41st IEEE International Conference on Robotics and Automation (ICRA 2024) • External Reviewer 32nd ACM International Conference on the Foundations of Software Engineering (FSE 2024) • Sub-reviewer 20th IEEE International Conference on Software Architecture (ICSA 2023) • Sub-reviewer 32nd ACM International Conference on Software Architecture (ICSA 2023) • Sub-reviewer 32nd ACM International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) • Sub-reviewer 42nd IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) • Sub-reviewer 5 Student Volunteer • Student Volunteer 5 Student Volunteer 6 Conference 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software	IEEE Robotics and Automation Letters (RA-L)	Jan 2024
 External Reviewer 32nd ACM International Conference on the Foundations of Software Engineering (FSE 2024) Oct 2023 Sub-reviewer 20th IEEE International Conference on Software Architecture (ICSA 2023) Dec 2022 Sub-reviewer Journal 27th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) Nov 2019 Volunteer Student Volunteer 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software	• Delegate Reviewer	Conference
 32nd ACM International Conference on the Foundations of Software Engineering (FSE 2024) Sub-reviewer 20th IEEE International Conference on Software Architecture (ICSA 2023) Sub-reviewer Journal 27th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) Nov 2019 Volunteer Student Volunteer Conference and Symposium on the Foundations of Software 	41st IEEE International Conference on Robotics and Automation (ICRA 2024)	Oct 2023
 Sub-reviewer 20th IEEE International Conference on Software Architecture (ICSA 2023) Sub-reviewer	• External Reviewer	Conference
20th IEEE International Conference on Software Architecture (ICSA 2023) • Sub-reviewer 27th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) Nov 2019 Volunteer • Student Volunteer 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software	32nd ACM International Conference on the Foundations of Software Engineering (FSE 2024)	Oct 2023
• Sub-reviewer 27th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) Nov 2019 Volunteer • Student Volunteer 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Dec. 2023	• Sub-reviewer	Conference
27th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020) Volunteer Student Volunteer 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Dec. 2023	20th IEEE International Conference on Software Architecture (ICSA 2023)	Dec 2022
Volunteer Conference • Student Volunteer Conference 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Dec. 2023	• Sub-reviewer	Journal
• Student Volunteer 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Dec. 2023	27th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020)	Nov 2019
31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software	Volunteer	
	• Student Volunteer	Conference
En vin voning (ECEC/ECE 0000)		Dec 2023

Symposium

May 2023

Talks

• Conference Paper Presentation

Hangzhou, China

"Regression Models for Performance Ranking of Configurable Systems: A Comparative Study" The Annual Conference on Software Analysis, Testing and Evolution (SATE 2019)

Nov 2019

Honors and Awards

- \bullet ACM SIGSOFT CAPS Award in 2024
- NSF Student Travel Award in 2023
- Chair's Award, University of California, Irvine in 2021
- \bullet Scholarship for Outstanding Students (Top 5%) in 2017-2018, 2016-2017, and 2018-2019
- Chinese Undergraduate Computer Design Contest (Provincial Level, Second Prize) in 2018