JIALUN CAO

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EDUCATIONAL BACKGROUND

The Hong Kong University of Science and Technology   **Sep 2019 – 2024**

- Department of Computer Science and Engineering
- **Supervisor**: Prof. Shing-Chi CHEUNG
- **Research areas**: AI & SE, Trustworthy AI, Vulnerability detection

M.S., University of Chinese Academy of Sciences   **Sep 2016 – Sep 2019**

- State Key Laboratory of Computer Science, Institute of Software, Chinese Academy of Sciences
- **Supervisor**: Prof. Yongjian LI
- **Research areas**: Formal Method, Parameterized Verification
- **CGPA**: 88.31 **(Rank: 2 / 106, Top 2%)**

B.S., Shandong University   **Sep 2012 - Jun 2016**

- School of Mechanical, Electrical & Information Engineering, Computer Science Department
- **CGPA**: 89.57 **(Rank: 2 / 52, Top 4%)**

HONORS AND AWARDS

2019 – 2021	Huawei Fellowship Scholarship
2019 – 2022	Hong Kong Postgraduate Scholarship
2017	China National Scholarship **(Postgraduate, Rank 1/106, Top 1%)**
2014	China National Scholarship **(Undergraduate, Rank 1/52, Top 2%)**
2016 – 2019	First-class Academic Scholarship **(Postgraduate, Top 10%)**
2012 – 2016	First Prize Scholarship **(Top 10%)**
2012 – 2016	Merit Student **(Top 4%)**
2016	Alibaba Tianchi & CCF Contest **(Rank 13/2845, Top 0.46%)**

PUBLICATIONS

Published Journal Papers

[TOSEM 2023]   CCF-A

COMET: Coverage-guided Model Generation for Deep Learning Library Testing

Meiziniu Li, **Jialun Cao**, Yongqiang Tian, Tsz-On Li, Ming Wen, Shing-Chi Cheung

[TOSEM 2021]   CCF-A

SemMT: A Semantic-based Testing Approach for Machine Translation Systems

Jialun CAO, Meiziniu LI, Yeting Li, Ming WEN, Shing-Chi CHEUNG, Haiming CHEN

Published Conference Papers

[CAV 2024]   CCF-A

Enchanting Program Specification Synthesis by Large Language Models using Static Analysis and Program Verification

Cheng Wen, **Jialun Cao***（**Corresponding**）, Jie Su, Zhiwu Xu, Shengchao Qin, Mengda He, Haokun Li, Shing-Chi Cheung and Cong Tian

[ESEC/FSE 2023]   CCF-A

Testing Coreference Resolution Systems without Labeled Test

Jialun Cao, Yaojie Lu, Ming Wen, Shing-Chi Cheung

[ESEC/FSE 2023]   CCF-A

Understanding the Bug Characteristics and Fix Strategies of Federated Learning Systems

Xiaohu Du, Xiao Chen, **Jialun Cao**, Ming Wen, Shing-Chi Cheung, Hai Jin

[ICSE 2022]   CCF-A

DeepFD: Automated Fault Diagnosis and Localization for Deep Learning Programs

Jialun Cao, Meiziniu Li, Xiao Chen, Ming Wen, Yongqiang Tian, Bo Wu, Shing-Chi Cheung

[USENIX Security 2022]   CCF-A

RegexScalpel: Regular Expression Denial of Service (ReDoS) Defense by Localize-and-Fix

Yeting LI, Yecheng SUN, Zhiwu XU, **Jialun CAO,** Yuekang LI, Rongchen LI, Haiming CHEN, Shing-Chi CHEUNG, Yang LIU

[USENIX Security 2021]   CCF-A

ReDoSHunter: A Combined Static and Dynamic Approach for Regular Expression DoS Detection.

Yeting LI, Zixuan CHEN, **Jialun CAO,** Zhiwu XU, Qiancheng PENG, Haiming CHEN, Liyuan CHEN, Shing-Chi CHEUNG

[ICSE 2021]   **CCF-A**

TransRegex: Multi-modal Regular Expression Synthesis by Generate-and-Repair.

Yeting LI, Shuaimin LI, Zhiwu XU, **Jialun CAO**, Zixuan CHEN, Yun HU, Haiming CHEN, Shing-Chi CHEUNG.

[ASE 2020]   **CCF-A**

FlashRegex: Deducing Anti-ReDoS Regexes from Examples.

Yeting LI, Zhiwu XU, **Jialun CAO**, Haiming CHEN, Tingjian GE, Shing-Chi CHEUNG, Haoren ZHAO

[ICDE 2020]   **CCF-A**

FlashSchema: Achieving High Quality XML Schemas with Powerful Inference Algorithms and Large-scale Schema Data.

Yeting LI, **Jialun CAO**, Haiming CHEN, Tingjian GE, Zhiwu XU, Qiancheng PENG

[DASFFA 2019]   **CCF-B**

Learning k-Occurrence Regular Expressions with Interleaving.

Yeting Li, Xiaolan Zhang, **Jialun Cao**, Haiming Chen, Chong Gao

[ICCD 2019]   **CCF-B**

A Learning-Based Framework for Automatic Parameterized Verification.

Yongjian LI, **Jialun CAO (1st student author)**, Jun PANG

[ASE 2018]   **CCF-A**

L-CMP: an automatic learning-based parameterized verification tool.

Jialun CAO, Yongjian LI, Jun PANG

[TASE 2024]   **CCF-A**

Fuzzing for Stateful Protocol Implementations: Are We There Yet?

Kunpeng Jian, Yanyan Zou, Yeting Li, **Jialun Cao**, Menghao Li, Jian Sun, Jingyi Shi and Wei Huo

[QRS 2018]   **CCF-C**

An Automatic Parameterized Verification of FLASH Cache Coherence Protocol.

Yongjian LI, **Jialun CAO (1st student author)**, Kaiqiang DUAN

PROFESSIONAL SERVICES

Conference Program Committee

IEEE/ACM International Conference on Software Engineering (ICSE) 2025

IEEE International Symposium on Software Reliability Engineering (ISSRE) 2024

Asia-Pacific Software Engineering Conference (ASPEC) 2024

Asia-Pacific Symposium on Internetware 2024

Theoretical Aspects of Software Engineering Conference (TASE) 2024 Sub-reviewer

Foundation Models and Software Engineering (FORGE) 2024

ACM International Conference on AI-powered software (AI-Ware) 2024

Journal Reviewer

ACM Transactions on Software Engineering and Methodology (TOSEM)

IEEE Transactions on Software Engineering (TSE)

Empirical Software Engineering (EMSE)

ACM Transactions on Knowledge Discovery from Data (TKDD)

IEEE Transactions on Mobile Computing (TMC)

TEACHING EXPERIENCE

HKUST COMP1021 Introduction to Computer Science Spring 2024. Teaching Assistant.
HKUST COMP3021 Java Programming, Fall 2020. Teaching Assistant.
HKUST COMP3021 Java Programming, Spring 2020. Teaching Assistant.

INVITED TALKS

2024   **From Requirement to Formal Specification and Model Generation via Large Language Models.** *Formal Methods Committee Strategic Seminar* hosted by *China Computer Federation (CCF).*

2023   **Crafting Future: A Dancer's Leap into Computer Science PhD.** *The 1st Forum for Women Scholars in Software Engineering* hosted by *ChinaSoft.*

2023   **A Study on the Problem of Data Contamination in the Era of Large Language Models**. *Forum on the new paradigm of software engineering under AIGC* hosted by *Chinasoft.*