

Yutian Tang

Assistant Professor

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Research Interests

Software Engineering (Program Analysis, Mining Software Repositories, Empirical Software Engineering, Android);
Security (Mobile Security, Fuzzing)

Education

2013.8-2018.9 **Ph.D.**, Department of Computing, The Hong Kong Polytechnic University, Hong Kong SAR, China (QS 2022=66)

Advisor ○ Dr. Xiapu Luo (Associate Professor), and Dr. Hareton Leung (Associate Professor Emeritus)

2009.9-2013.6 **B.Sc.**, Department of Computer Science and Technology, Jilin University, Changchun, China

Advisor ○ Prof. Lan Huang, Associate Dean

Research Positions

2020.10-Present **Assistant Professor**, School of Information Science and Technology, ShanghaiTech University (A university affiliated to Chinese Academic of Sciences), China

2018-2020 **Post-doc Research Fellow**, The Hong Kong Polytechnic University, Hong Kong SAR, China

2017-2018 **Part-time Research Assistant**, The Hong Kong Polytechnic University, Hong Kong SAR, China.

Fundings

Solo PI

2020-2023 Early career research fund (No.2020F0203-000-14)
ShanghaiTech University
Grant Amount: 3 million CNY

2021-2023 Vulnerable Components Detection for Apps (No. 21PJ1410700)
Shanghai Pujiang Program, Science and Technology Commission of Shanghai Municipality
Grant Amount: 300,000 CNY

Co-PI or Participants

2018-2020 Improving Mobile Users' Privacy Decisions via Exposing Unexpected Sensitive Operations in Hardened Apps
Research Grants Council GRF, Hong Kong
Grant Amount: 416,667 HKD

2018-2020 Research and Development of An Advanced IPS System for Aftermarket Telematics
Innovation and Technology Fund (ITF), Hong Kong
Grant Amount: 2,386,066 HKD (including 1,899,340 HKD from ITF, and 486,726 from company sponsor);

Publication (* corresponding author)

Summary ESEC/FSE (1); WWW (1); ASE (2); IEEE TSE (3); IEEE TReli (1); SANER (3); ICPC (2); ISSRE (2); JSS (2); IST (2); JCST (1)
JCR-Q1 (9), CCF-A (7), CCF-B(12), Core-A(8)
Conference * 17, Journal * 11

Peer-Review Conference Papers (17)

- C.17** Guosheng Xu, Siyi Li, Hao Zhou, Shucen Liu, **Yutian Tang**, Li Li, Xiapu Luo, Xusheng Xiao, Guoai Xu and Haoyu Wang, "Lie to Me: Abusing the Mobile Content Sharing Service for Fun and Profit", *The Web Conference (WWW)*, 2022, **CORE-A***, **CCF-A**;
- C.16 Zejun Wu, Chao Ma, Xiaochuan Shi, Libing Wu, Dian Zhang, **Yutian Tang**, "BRNN-GAN: Generative Adversarial Networks with Bi-directional Recurrent Neural Networks for Multivariate Time Series Imputation", *IEEE International Conference on Parallel and Distributed Systems*, 2021, CCF-C;
- C.15 Kunsong Zhao, Zhou Xu, Meng Yan, **Yutian Tang**, Ming Fan, Gemma Catolino, "Just-in-Time Defect Prediction for Android Apps via Imbalanced Deep Learning Model", *The 36th ACM/SIGAPP Symposium On Applied Computing*, 2021
- C.14** Hao Zhou, Haoyu Wang, Yajin Zhou, Xiapu Luo, **Yutian Tang**, Lei Xu, Ting Wang, "Demystifying Diehard Android Apps", *35th IEEE/ACM International Conference on Automated Software Engineering (ASE)*, 2020 **Core A***, **CCF-A**, **Top 3 conference in SE**;
- C.13 Kunsong Zhao, Zhou Xu, Tao Zhang, **Yutian Tang**, "Simplified Deep Forest Model based Just-In-Time Defect Prediction for Android Mobile Apps", *20th International Conference on Software Quality, Reliability, and Security (QRS)*, 2020 CCF-C;

- C.12 Yutian Tang**, Yulei Sui, Haoyu Wang, Xiapu Luo, Hao Zhou, Zhou Xu, "All Your App Links (are) Belong to Us: Understanding the Threats of Instant Apps based Attacks", *The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE)*, 2020, **Core A***, **CCF-A**, **Top 2 conference in SE, the vulnerability reported is confirmed by Google**;
- C.11 Yan Cai, Yutian Tang**, Haicheng Li, Le Yu, Hao Zhou, Xiapu Luo, Liang He, Purui Su, "Resource Race Attacks on Android", *27th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER)*, 2020, **CCF-B**, **Core A**, **the vulnerability reported is confirmed by Google**;
- C.10 Yutian Tang**, Xian Zhan, Hao Zhou, Xiapu Luo, Zhou Xu, Yajin Zhou, Qiben Yan, "Demystifying Application Performance Management Libraries for Android", *The 34th IEEE/ACM International Conference on Automated Software Engineering (ASE)*, 2019, **CCF-A**, **Core-A***;
- C.9 Zhou Xu, Sizhe Ye, Tao Zhang, Zhen Xia, Shuai Pang, Yong Wang, **Yutian Tang**, "MVSE: Effort-Aware Heterogeneous Defect Prediction via Multiple-View Spectral Embedding", *19th International Conference on Software Quality, Reliability, and Security (QRS)*, 2019, **CCF-C**;
- C.8 Zhou Xu, Shuai Pang, Yifeng Zhang, **Yutian Tang**, Jin Liu, Xiapu Luo, Jacky Keung, Xiaohui Cui, "Identifying Crashing Fault Residence Based on Cross Project Model", *International Symposium on Software Reliability Engineering (ISSRE)*, 2019, **CCF-B**, **Core-A**;
- C.7 Xian Zhan, Tao Zhang, **Yutian Tang**, "A Comparative Study of Android Repackaged Apps Detection Techniques", *2019 IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER)*, 2019, **CCF-B**, **Core-A**;
- C.6 Xuejiao Zhao, Hongwei Li, Yutian Tang**, Dongjing Gao, Lingfeng Bao, Chinghung Lee, "A Smart Context-aware Program Assistant based on Dynamic Programming Event Modeling", *The 29th IEEE International Symposium on Software Reliability Engineering (ISSRE)*, 2018, **CCF-B**, **Core-A**, **Best Industrial Paper Award**;
- C.5 Zhou Xu, Shuai Li, **Yutian Tang**, Xiapu Luo, Tao Zhang, Jin Liu, Jun Xu, "Cross Version Defect Prediction with Representative Data via Sparse Subset Selection", *26th IEEE/ACM International Conference on Program Comprehension (ICPC)*, 2018, **CCF-B**, **Core-B**;
- C.4 Yutian Tang**, Hareton Leung, "Constructing Feature Model by Identifying Variability-aware Modules", *25th IEEE/ACM International Conference on Program Comprehension (ICPC)*, 2017, **CCF-B**;
- C.3 Yutian Tang**, Hareton Leung, "StiCProb: A Novel Feature Mining Approach using Conditional Probability", *24th IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER)*, 2017, **CCF-B**, **Core-A**;
- C.2 **Yutian Tang**, Hareton Leung, "Feature Mining for Product Line Construction", *The First International Conference on Advances and Trends in Software Engineering (SOFTENG)*, 2015;

- C.1 **Yutian Tang**, Hareton Leung, "A Top-down Feature Mining Framework for Software Product Line", 17th International Conference on Enterprise Information Systems (ICEIS), 2015;

Peer-Review Journal Articles (11)

- J.11 Le Yu, Haoyu Wang, Xiapu Luo, Tao Zhang, Kang Liu, Jiachi Chen, Hao Zhou, **Yutian Tang**, Xusheng Xiao, "Towards Automatically Localizing Function Errors in Mobile Apps with User Reviews", *IEEE Transactions on Software Engineering*, 2022 **Top-1 Journal in SE field, CCF-A**, IF=6.226
- J.10 Jian Huang, Shanhui Liu, **Yutian Tang***, Xiushan Zhang, "Object-Level Remote Sensing Image Augmentation Using U-Net-Based Generative Adversarial Networks", *Wireless Communication and Mobile Computing*, CCF-C, 2021;
- J.9 **Yutian Tang**, Hao Zhou, Xiapu Luo, Ting Chen, Haoyu Wang, Zhou Xu, and Yan Cai, "XDebloa: Towards Automated Feature-Oriented App Debloating", *IEEE Transactions on Software Engineering*, 2021 **Top-1 Journal in SE field, CCF-A**, IF=6.226
- J.8 Zhen Yang, Jacky Keung, Md Alamgir Kabir, Xiao Yu, **Yutian Tang**, Miao Zhang, Shuo Feng, "AComNN: Attention Enhanced Compound Neural Network For Financial Time-Series Forecasting With Cross-Regional Features", *Applied Soft Computing*, 2021 **JCR-Q1**, IF=5.47
- J.7 Kunsong Zhao, Zhou Xu, Tao Zhang, **Yutian Tang**, Meng Yan, "Simplified Deep Forest Model based Just-In-Time Defect Prediction for Android Mobile Apps", *IEEE Transactions on Reliability*, 2021 **JCR-Q1**;
- J.6 **Yutian Tang***, Haoyu Wang, Xian Zhan, Xiapu Luo*, Yajin Zhou, Hao Zhou, Qiben Yan, Yulei Sui, Jacky Keung, "A Systematical Study on Application Performance Management Libraries for Apps", *IEEE Transactions on Software Engineering*, 2021 **Top-1 Journal in SE field, JCR-Q1**; IF=6.226;
- J.5 Zhou Xu, Tao Zhang, Jacky Keung, Meng Yan, Xiapu Luo, Xiaohong Zhang, Ling Xu, **Yutian Tang**, "Feature Selection and Embedding Based Cross Project Framework for Identifying Crashing Fault Residence" *Information and Software Technology (IST)*, 2020, **CCF-B, JCR-Q2**;
- J.4 Zhou Xu, Shuai Li, Jun Xu, Jin Liu, Xiapu Luo, Yifeng Zhang, Tao Zhang, Jacky Keung, **Yutian Tang**, "LDFR: Learning deep feature representation for software defect prediction", *Journal of Systems and Software (JSS)*, 2019, **JCR-Q1**;
- J.3 Zhou Xu, Shuai Pang, Tao Zhang, Xiapu Luo, **Yutian Tang**, Xiao Yu, Lei Xue, "Cross Project Defect Prediction via Balanced Distribution Adaptation based Transfer Learning", *Journal of Computer Science and Technology (JCST)*, 2019, **CCF-B**;
- J.2 Zhou Xu, Shuai Li, Xiapu Luo, Jin Liu, Tao Zhang, **Yutian Tang**, Jun Xu, Peipei Yuan, Jacky Keung, "TSTSS: A Two-Stage Training Subset Selection Framework for Cross Version Defect Prediction", *Journal of System and Software (JSS)*, 2019, **CCF-B, JCR-Q1**;

- J.1 Zhou Xu, Jin Liu, Xiapu Luo, Zijiang Yang, Yifeng Zhang, Peipei Yuan, **Yutian Tang**, Tao Zhang, "Software Defect Prediction Based on Kernel PCA and Weighted Extreme Learning Machine", Information and Software Technology (IST), 2018, CCF-B, JCR-Q1;

Academic Service

Grant Referee

Grant Reviewing Committee **Shanghai Innovation Grant Reviewing Committee**, 2021

Editorship

Review Editor **Frontiers in Computer Science** (ESCI index)

Academic Editor **Scientific Computing** (SCIE index)

Academic Editor **PLOS One**

Technical Committee Member

Committee Member **CCF-Technical Committee of Software Engineering**

Committee Member **CCF-Technical Committee of System Software**

Committee Member **Shanghai Computer Society-Technical Committee of Software Engineering**

Conference Program Committee Member

PLDI **Programming Language Design and Implementation (PLDI)**
Artefact Evaluation Track (2022)

FTC **Future Technologies Conference**
Research Track (2022)

SEKE **International Conference on Software Engineering & Knowledge Engineering, (SEKE)**
Research Track (2022);

MobileSoft **IEEE/ACM International Conference on Mobile Software Engineering and Systems (MobileSoft)**
Research Track (2022), Industry Track (2022);

ICSE **International Conference on Software Engineering (ICSE)**
Artefact Evaluation Track (2022)

ICPC **International Conference on Program Comprehension (ICPC)**
Research Track (2022);

ChinaSoft **CCF Chinasoft Conference (ChinaSoft)**
Software & Data Intelligence Track(2021)

ESEC/FSE **The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE)**
Artefact Evaluation Track (2021, 2022)

Journal Reviewer

Reviewer **IEEE Transactions on Dependable and Secure Computing;**
Reviewer **Journal of Computer Security;**
Reviewer **IEEE Transactions on Reliability;**
Reviewer **IEEE Transactions on Software Engineering;**
Reviewer **Automated Software Engineering (ASE);**
Reviewer **Frontier of Computer Science;**
Reviewer **SN Applied Sciences;**
Reviewer **Scientific Programming;**
Reviewer **Frontiers of Information Technology & Electronic Engineering;**
Reviewer **SCIENCE CHINA Information Sciences;**
Reviewer **IEEE Access;**
Reviewer **Security and Communication Networks;**
Ad-hoc **Journal of Information Technology Research;**
Reviewer
Sub-reviewer **IEEE Transactions on Services Computing, IEEE Transactions on Biometrics, Behavior and Identity Science, ACM Transactions on Software Engineering and Methodology (TOSEM)**

News Interview

VOC 12/Aug/2021 – The Voice of China; [see <https://mp.weixin.qq.com/s/glvaDNdsAAXrdAn9imDgnQ> (in Chinese)]

Awards & Scholarships

2021 **Shanghai Pujiang Talent Program**, Science and Technology Commission of Shanghai Municipality
2018 **Best Industry Paper Award** International Symposium on Software Reliability Engineering, Paper: “A Smart Context-aware Program Assistant based on Dynamic Programming Event Modeling”
2013–2017 **Ph.D. Scholarships**, The Hong Kong Polytechnic University
2012 **Undergraduate Research Award, First Prize**, Jilin University
2012 **Undergraduate Scholarships, Second Prize**, Jilin University
2011 **Undergraduate Scholarships, Third Prize**, Jilin University

Professional Qualifications & Membership

2020–Present **Member**, China Computer Federation (CCF)
2020–Present **Member**, EuroSys

2017–Present **Member**,ISACA
2017–Present **Member**,IEEE
2021–Present **Member**,ACM
2017–Present **Member**,HKCS
2012–Present **Senior Software Engineer**, under “China Qualification Certificate of Computer Science Technology Proficiency”

Teaching

Instructor

Instructor-ShanghaiTech CS132 Software Engineering, ShanghaiTech University; 2021 (Spring,Fall) (Course for Undergraduate), (in English and Chinese);

Instructor-ShanghaiTech CS224 Program Analysis, ShanghaiTech University; 2022 (Spring) (Course for Graduate), in English and Chinese);

Teaching Assistant

TA-PolyU.HK COMP3235, Software Project Management, Department of Computing; (Course for both Undergraduate);

TA-PolyU.HK COMP3233, Software Testing and Quality Assurance, Department of Computing;(Course for both Undergraduate);

TA-PolyU.HK COMP4911, Capstone Project, Department of Computing; (Course for both Undergraduate);

TA-PolyU.HK COMP3211, Software Engineering, Department of Computing; (Course for both Undergraduate);

TA-PolyU.HK COMP309, System Programming, Department of Computing; (Course for both Undergraduate);

TA-PolyU.HK COMP322, Enterprise Information Systems Project Implementation, Department of Computing (Course for both Undergraduate);

Mentoring Experience

MSc. and Ph.D. Student

2022–2025 2 Students: Z. Liu, H. Hu

2021–2024 5 Students: k. Cao, Y. Su, Z. Zhou, X. Zhang, M. Yang

Undergraduate Research Interns

2021–Present 2 Students: H. Cao, P. He

Undergraduate Final Year Project

2022 4 Students: H. Jing, X. Shen, Y.Feng, Z. Tang

2021 1 Student: T. Zhao (TICP Shanghai)

Conference Talks & Invited Talks

Fudan University “Demystifying Application Performance Management Libraries for Android”, **Yutian Tang**, Fudan University, 8/4/2021, Seminar;

- ShanghaiTech University "System Security, Are We There Yet?", **Yutian Tang**, School of Information Science and Technology, ShanghaiTech University, 6/11/2020, Undergraduate Seminar;
Invited Speaker The 12th International Conference on Advanced Infocomm Technology(2020);
- ShanghaiTech University "Android, Don't Lie to Me", **Yutian Tang**, ShanghaiTech University, China;
Queen's University Belfast "Android, Don't Lie to Me", **Yutian Tang**, Queen's University Belfast, United Kingdom;
- University of East London "Android, Don't Lie to Me", **Yutian Tang**, University of East London, United Kingdom
- University of Dundee "Android, Don't Lie to Me", **Yutian Tang**, University of Dundee, United Kingdom;
- University of Central Lancashire "Android, Don't Lie to Me", **Yutian Tang**, University of Central Lancashire, United Kingdom;
- University of Canterbury "Android, Don't Lie to Me", **Yutian Tang**, University of Canterbury, New Zealand;
- ESEC/FSE'20 "All Your App Links are Belong to Us: Understanding the Threats of Instant Apps based Attacks", **Yutian Tang**, in *The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering*;
- Tongji University "All Your App Links are Belong to Us: Understanding the Threats of Instant Apps based Attacks", **Yutian Tang**, School of Software, Tongji University;
- ASE'19 "Demystifying Application Performance Management Libraries for Android,", **Yutian Tang** in *34th IEEE/ACM International Conference on Automated Software Engineering*;
- SANER'17 "StiCProb: A Novel Feature Mining Approach Using Conditional Probability", **Yutian Tang**, in *Proceedings of 24th IEEE International Conference on Software Analysis, Evolution, and Reengineering*;
- ICPC'17 "Constructing Feature Model by Identifying Variability-aware Modules", **Yutian Tang**, in *IEEE/ACM International Conference on Program Comprehension*;
- SOFTENG'15 "Feature Mining for Product Line Construction", **Yutian Tang**, in *The First International Conference on Advances and Trends in Software Engineering*;
- ICEIS'15 "Top-down Feature Mining Framework for Software Product Line," **Yutian Tang**, in *Proceedings of the International Conference on Enterprise Information System*;

University & Department Service

- 2021 Undergraduate Admission Coordinator, ShanghaiTech University, Hangzhou (Zhejiang); 28/6/2021-1/7/2021
- 2021 Graduate recruiting at Jilin University, Changchun, 11/6/2021
- 2021 Graduate recruiting at Northeastern University, Shenyang

- 2021 Undergraduate Admission Coordinator, ShanghaiTech University, Tianjin City; 24/4/2021, 25/4/2021
- 2021 PI Interview Committee, System and Security Center, 1C-201, SIST, ShanghaiTech University, 4/3/2021; 11/3/2021
- 2021 Graduate Admission Interview, School of Information Science and Technology, 1A-302, SIST, ShanghaiTech University, 19/3/2021
- 2020 Modular High Performance Computing Application Innovation Workshop, 26/11/2020-Room 110, Administration Center, ShanghaiTech University
- 2020 Graduate Admission Interview, School of Information Science and Technology, 1A-212, SIST, ShanghaiTech University, 23/10/2020;13/09/2020
- 2020 Undergraduate Seminar, "System Security, Are We There Yet?", School of Information Science and Technology, ShanghaiTech University, 6/11/2020
- 2020 PI Interview Committee, System and Security Center, 1C-201, SIST, ShanghaiTech University, 19/11/2020

References

Available upon requests.