

# 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, 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.

## Vulnerabilities and Patches

CVE No. CVE-2020-27057  
AndroidID No. 128919672

## 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); ASE (2); IEEE TSE (2); IEEE TReli (1); SANER (3); ICPC (2); ISSRE (2); JSS (2); IST (2); JCST (1)  
JCR-Q1 (8), CCF-A (5), CCF-B(12), Core-A(8)
- JCST'21 Hongchen Cao, Shuai Li, Yuming Zhou, Ming Fan, Xuejiao Zhao, **Yutian Tang\***, "Towards Black-box Attacks on Deep Learning Apps", *Journal of Computer Science and Technology (JCST)*, CCF-B; under review
- WMC'21 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;
- TSE'21b **Yutian Tang**, Hao Zhou, Xiapu Luo, Ting Chen, Haoyu Wang, Zhou Xu, and Yan Cai, "XDebloat: Towards Automated Feature-Oriented App Debloating", *IEEE Transactions on Software Engineering*, **Top-1 Journal in SE field**, IF=6.112, in minor revision, to accept
- SoftComp 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*, **JCR-Q1**, IF=5.47
- TReli'21 Kunsong Zhao, Zhou Xu, Tao Zhang, **Yutian Tang**, "Simplified Deep Forest Model based Just-In-Time Defect Prediction for Android Mobile Apps", *IEEE Transactions on Reliability* JCR-Q1;
- SAC'21 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*

- TSE'21a **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*, **Top-1 Journal in SE field, JCR-Q1**; IF=6.112;
- IST'20 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)*, CCF-B, **JCR-Q1**;
- ASE'20 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)* **Core A\*, CCF-A, Top 3 conference in SE**;
- QRS'20 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)* CCF-C;
- ESEC/FSE'20 **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)*, **Core A\*, CCF-A, Top 2 conference in SE, the vulnerability reported is confirmed by Google**;
- arXiv'20 **Yutian Tang**, Hao Zhou, Zhou Xu, Xiapu Luo, Yan Cai, and Tao Zhang, "Feature Location Benchmark for Decomposing and Reusing Android Apps", *In arXiv, 2020 2005.04008*;
- SANER'20 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)*, CCF-B, **Core A, the vulnerability reported is confirmed by Google**;
- ASE'19 **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)*, **CCF-A, Core-A\***;
- JSS'19 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)*, **JCR-Q1**;
- QRS'19 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)*, CCF-C;
- ISSRE'19 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)*, CCF-B, **Core-A**;

- JCST'19 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), CCF-B;
- JSS'19 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), CCF-B, **JCR-Q1**;
- SANER'19 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), CCF-B, **Core-A**;
- IST'18 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), CCF-B, **JCR-Q1**;
- ISSRE'18 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), CCF-B, **Core-A, Best Industrial Paper Award**;
- ICPC'18 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), CCF-B, Core-B;
- ICPC'17 **Yutian Tang**, Hareton Leung, "Constructing Feature Model by Identifying Variability-aware Modules", 25th IEEE/ACM International Conference on Program Comprehension (ICPC), CCF-B;
- SANER'17 **Yutian Tang**, Hareton Leung, "StiCProb: A Novel Feature Mining Approach using Conditional Probability", 24th IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER), CCF-B, **Core-A**;
- SOFTENG'15 **Yutian Tang**, Hareton Leung, "Feature Mining for Product Line Construction", The First International Conference on Advances and Trends in Software Engineering (SOFTENG);
- ICEIS'15 **Yutian Tang**, Hareton Leung, "A Top-down Feature Mining Framework for Software Product Line", 17th International Conference on Enterprise Information Systems (ICEIS);

## Academic Service

### Grant Referee

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

### Technical Committee Member

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

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

**Conference PC Member**

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

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

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

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

**Journal Reviewer**

Reviewer **IEEE Transactions on Dependable and Secure Computing;**

Reviewer **Journal of Computer Security;**

Reviewer **IEEE Transactions on Reliability;**

Reviewer **Frontier of Computer Science;**

Reviewer **SN Applied Sciences;**

Reviewer **Scientific Programming;**

Reviewer **SCIENCE CHINA Information Sciences;**

Reviewer **IEEE Access;**

Reviewer **Security and Communication Networks;**

Sub-reviewer IEEE Transactions on Services Computing, IEEE Transactions on Biometrics, Behavior and Identity Science, ACM Transactions on Software Engineering and Methodology (TOSEM)

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**News Interview**

VOC 21/Aug/2021 – The Voice of China; [see <https://mp.weixin.qq.com/s/g1vaDNdsAAXrdAn9imDgnQ> (in Chinese)]

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**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

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## Professional Qualifications & Membership

- 2020-Present **Member**, China Computer Federation (CCF)  
2020-Present **Member**, EuroSys  
2017-Present **Member**, ISACA  
2017-Present **Member**, IEEE  
2017-Present **Member**, HKCS  
2012-Present **Senior Software Engineer**, under “China Qualification Certificate of Computer Science Technology Proficiency”

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## Students under My Supervision

### Research Students

- 2021.09-now Xuenan Zhang, Msc Student, ShanghaiTech University.  
2021.09-now Zhichao Zhou, Msc Student, ShanghaiTech University.  
2021.09-now Mingke Yang, Msc. Student, ShanghaiTech University.  
2021.09-now Kefan Cao, Msc Student, ShanghaiTech University, Co-supervised with Shanghai Zhaoxin Co.  
2021.09-now Yang Su, Msc Student, ShanghaiTech University, Co-supervised with ICT, Chinese Academy of Science.  
2019-2022 Hao Zhou, Ph.D. student, topic: “UI testing for Android” co-supervised with Dr. Xiapu Luo, The Hong Kong Polytechnic University.  
◦ Paper with me: ASE'19, ASE'20, ESEC/FSE'20, TSE'21a, TSE'21b.

### Final Year Project Supervision

- 2020 Tianyang Zhao, UG Student, ShanghaiTech University, TICP, Shanghai;

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

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

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## 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*;

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## 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

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## References

Available upon requests.