

# Yutian Tang

*Assistant Professor*

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## Research Interests

Program Analysis, Android, System Security, Mining Software Repositories, Empirical Software Engineering, Fuzzing

## Education

2013.8-2018.9 **Ph.D.**, Department of Computing, The Hong Kong Polytechnic University, Hong Kong SAR, China

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

2018.11-2020.05 **Post-doc Research Fellow**, The Hong Kong Polytechnic University, Hong Kong SAR, China

2017.08-2018.05 **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

**Summary** In total, my research already received **\$792,786 or £609,950**

**PI** As a principle investigator, my research already received **\$431,161 or £329,677**

2020.10- “Early career research fund (No.2020F0203-000-14)”, ShanghaiTech University,  
2026.10 China, Fund: 3 million CNY (\$431,161 or £329,677)

**CI** As a member, my research already received **2,802,733 HKD (\$361,625 or £280,273 )**

2018.01- “Improving Mobile Users’ Privacy Decisions via Exposing Unexpected Sensitive Oper-  
2020.12 ations in Hardened Apps”, Research Grants Council GRF, Hong Kong, Fund: 416,667  
HKD; see [https://cerg1.ugc.edu.hk/cergprod/scrrm00542.jsp?proj\\_id=15222317](https://cerg1.ugc.edu.hk/cergprod/scrrm00542.jsp?proj_id=15222317)

2018.03- “Research and Development of An Advanced IPS System for Aftermarket Telemat-  
2020.05 ics;”, Innovation and Technology Fund (ITF), Hong Kong, Fund: 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); TSE (2); TReli (1); SANER (3); ICPC (2); ISSRE (2);  
JSS (2); IST (2); JCST (1)

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**; in **Major** revision

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, **the vulnerability reported is confirmed by Google**;
- ASE'19 **Yutian Tang**, Xian Zhan, Hao Zhou, Xiapu Luo, Zhou Xu, Yajin Zhou, Qiben Yan, "Resource Race Attacks on 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;
- 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;
- 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);

## Teaching

- 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);
- 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);

## Students under My Supervision

- 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.
- 2020.12-now Hongchen Cao, Research Intern (Undergraduate), ShanghaiTech University.
- 2021.4-now Zhenghong Yu, Research Intern (Undergraduate), ShanghaiTech University.
- 2021.4-now Yufei Wu, Research Intern (Undergraduate), ShanghaiTech University.
- 2021.4-now Jirui Shi, Research Intern (Undergraduate), ShanghaiTech University.
- 2021.4-now Tangyuan Zhang, Research Intern (Undergraduate), ShanghaiTech University.

- 2019-2022 Hao Zhou, Ph.D. student, topic: "UI testing for Android" co-supervised with Dr. Xiapu Luo, The Hong Kong Polytechnic University.  
 o Paper with me: ASE'19, ASE'20, ESEC/FSE'20, TSE'21a, TSE'21b.

## Academic Service

- 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 **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)  
 Invited Speaker The 12th International Conference on Advanced Infocomm Technology;  
 Conference TPC **Artefact Evaluation Program Committee, International Conference on Software Engineering (ICSE), 2022;**  
 Conference TPC **Artefact Evaluation Program Committee, The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), 2021;**

## University & Department Service

- 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

## Professional Qualifications & Membership

2012-Present **Senior Software Engineer**, under “China Qualification Certificate of Computer Science Technology Proficiency”

2017-Present **Member**,ISACA

2017-Present **Member**,IEEE

2017-Present **Member**,HKCS

2020-Present **Member**,EuroSys

## 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 *Constructing Feature Model by Identifying Variability-aware Modules*;

- 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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## Awards & Scholarships

- 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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## References

Available upon requests.