

Yutian Tang

Assistant Professor

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Research Interests

Software Analytic, 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: 3,000,000 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

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); SANER (3); ICPC (2); ISSRE (2); JSS (2); IST (2); JCST (1)

TSE **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**; (under review)

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*; accepted

TSE’21 **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**; in **Major** revision;

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*, 2020.04008;

- 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) (Course for both Undergraduate), (in English and Chinese);
- Instructor-ShanghaiTech CS277 Introduction to Data Science and Fintech, ShanghaiTech University; 2021 (Fall) (Course for both Undergraduate and 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

- 2020.12-now Hongchen Cao, 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.
Paper with me: ASE'19, ASE'20, ESEC/FSE'20, TSE.
- 2020-2022 Zhen Yang, Ph.D. student, co-supervised with Dr. Jackey Keung, The City University of Hong Kong.

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;**
 Sub-reviewer IEEE Transactions on Services Computing, IEEE Transactions on Biometrics, Behavior and Identity Science
 Invited The 12th International Conference on Advanced Infocomm Technology;
 Speaker

University & Department Service

2021 Undergraduate Admission Coordinator, ShanghaiTech University, 11/2020-Tianjin City
 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

ShanghaiTech University "System Security, Are We There Yet?", **Yutian Tang**, School of Information Science and Technology, ShanghaiTech University, 6/11/2020, Undergraduate Seminar;
 Invited The 12th International Conference on Advanced Infocomm Technology(2020);
 Speaker
 ShanghaiTech University "Android, Don't Lie to Me", **Yutian Tang**, School of Information Science and Technology, ShanghaiTech University;
 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*;

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

Reference

- R1 Dr. Xiapu Luo
Associate Professor, Department of Computing, The Hong Kong Polytechnic University, Email: csxluo@comp.polyu.edu.hk
- R2 Pro. Yang Liu
Full Professor, School of Computer Science and Engineering, Nanyang Technological University, Email: yangliu@ntu.edu.sg
- R3 Dr. Yulei Sui
Senior Lecturer, School of Computer Science, Faculty of Engineering and Information Technology, University of Technology Sydney, Email: yulei.sui@uts.edu.au
- R4 Prof. Yan Cai
Professor, Institute of Software, Chinese Academy of Sciences, Email: ycai.mail@gmail.com
- R5 Dr. Haoyu Wang
Associate Professor, Beijing University of Posts and Telecommunications, Email: haoyuwang@bupt.edu.cn