Tao Zhang

Personal Particulars

Position: Associate Professor
Affiliation: College of Computer Science and Technology, Harbin Engineering University
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Educational Background

- Doctor of Philosophy (Sept. 2008-Feb. 2013)
  Department of Computer Science, University of Seoul, Seoul, South Korea
  Advisor: Prof. Dr. Byungjeong Lee
  Dissertation: A Bug Triage and Localization Technique Based on Bug Reports Classification

- Master of Engineering (Sept. 2005-Mar. 2008)
  Department of Software Engineering, Northeastern University, Shenyang, China
  Advisor: Prof. Chaowan Yin
  Thesis: Research and Implementation of Globus Sandglass Model Based Steel Transportation Service System

- Bachelor of Science in Engineering (Sept. 2000-Jul. 2005)
  Department of Automation, Northeastern University, Shenyang, China
  Thesis: Improving Temperature Control System Using Decoupling Technique

Research Experience

- Assistant Professor (Feb. 2016-Dec. 2016), School of Computer Science and Technology, Nanjing University of Posts and Telecommunications, Nanjing, China
- Postdoctoral Fellow (Nov. 2014-Nov. 2015), Department of Computing, The Hong Kong Polytechnic University, Hong Kong, China
- Postdoctoral Fellow (Mar. 2014-Aug. 2014), Faculty of Computer Science and Information Technology, University of Malaya, Kuala Lumpur, Malaysia.
- Research Professor (Mar. 2013-Feb. 2014), Department of Computer Science, University of Seoul, Seoul, South Korea

Industrial Experience

- Software Engineer (Mar. 2008-Jul. 2008), Division of Network Security, Neusoft, China
- Intern (Jul. 2007-Nov. 2007), Division of Network Security, Neusoft, China

Honors and Awards

- HEU's Young Leading Talent, Jan. 2017
- Best Paper Award, KCSE 2014, Feb. 2014
- SIGAPP Student Travel Award, ACM SAC 2013, Mar. 2013
- Honor Prize, the 18th Samsung HumanTech Paper Award, Feb. 2012
- Bronze Prize, the 2011 IEEE Seoul Section Student Paper Contest, Dec. 2011
- BK21 Fellowship, Korea Government, Sep. 2008-Jun. 2010
- Second Place Award, National Senior High School Mathematics Tournament, Oct. 1999

Academic Activities

- **Associate Editor**: IEEE Access
- **Track Chair**: Software Engineering Track at ACM SAC 2017-2019
- **Workshop Chair:** IBF 2019 (co-located with SANER 2019)
- **Publicity Chair**: SANER 2019, QRS 2019
- **TPC Member**: ISEC 2020, NASAC 2019 (Intelligent Software Engineering Track & Big Data-Driven Intelligent Software Development for Onsite Programming Track), ASE 2019 (Tool Demonstration Track), NSS 2018, NASAC 2016-2017, SATE 2016-2017, ACM SAC 2015-2017 (Software Engineering Track)
- **Reviewer**: Journal of Software: Evolution and Process (JSEP), Journal of Systems and Software (JSS), IET Software, Software Quality Journal (SQJ), Journal of Ambient Intelligence and Humanized Computing (JAIHC), Journal of Software: Practice and Experience (JSPE), IEEE Transactions on Reliability (TR), Journal of Computer Science and Technology (JCST), Journal of KING SAUD University-Computer and Information Sciences, Empirical Software Engineering (EMSE), IEEE Access, Journal of Supercomputing, Cluster Computing, Information and Software Technology (IST), International Journal of Software Engineering and Knowledge Engineering (IJSEKE), Frontiers of Computer Science (FCS), SCIENCE CHINA Information Sciences
- **Membership**: CCF (Senior Member, Member of Software Engineering Committee) & IEEE (Member) & ACM (Professional Member)

Research Area

- **Security and Privacy for Mobile Apps**
- **Mining Software Repository**

Fundings

- PI, "Bug Triage for Mobile Apps", supported by Natural Science Foundation of Heilongjiang Province, CNY 100,000, 06/2019-06/2022.
- PI, "Security Vulnerabilities Report Generation Technology for Closed Mobile Apps", supported by the Open Fund of Key Laboratory of Network Assessment Technology, Chinese Academy of Sciences, CNY 90,000, 10/2017-10/2018.
- PI, "Commit Based Automated Bug Assignment Method for Mobile Apps", supported by China Postdoctoral Science Foundation, CNY 50,000, 08/2017-08/2019.
- PI, "Bug Localization for Mobile Apps", supported by National Natural Science Foundation of China (NSFC), CNY 200,000, 01/2017-12/2019.
- PI, "Automated Bug Fixer Recommendation Method for Mobile Apps", supported by the Fundamental Research Funds of Harbin Engineering University, CNY 200,000, 01/2017-12/2018.

Publications
International Journal Papers

- Jingxuan Zhang, He Jiang, Zhilei Ren, **Tao Zhang**, and Zhiqiu Huang, "Enriching API Documentation with Code Samples and Usage Scenarios from Crowd Knowledge", *IEEE Transactions on Software Engineering (TSE)*, online, 2019.
- Le Yu, Xiapu Luo, Jiachi Chen, Hao Zhou, **Tao Zhang**, Henry Chang, and Hareton. K. N. Leung, "PPChecker: Towards Accessing the Trustworthiness of Android Apps' Privacy Policies", *IEEE Transactions on Software Engineering (TSE)*, online, 2019.
- Zhou Xu, Shuai Pang, **Tao Zhang**, Xiapu Luo, Jin Liu, Yutian Tang, Xiao Yu, and Lei Xue, "Cross Project Defect Prediction via Balanced Distribution Adaptation Based Transfer Learning", *Journal of Computer Science and Technology (JCST)*, online, 2019.
- **Tao Zhang**, Haoming Li, Zhou Xu, Jian Liu, Rubing Huang, and Yiran Shen, "Labeling

Issue Reports in Mobile Apps", *IET Software*, online, 2019.

- Zhou Xu, Shuai Li, Xiapu Luo, Jin Liu, **Tao Zhang**, Yutian Tang, Jun Xu, Peipei Yuan, and Jacky Keung, "TSTSS: A Two-Stage Training Subset Selection Framework for Cross Version Defect Prediction", *Journal of Systems and Software (JSS)*, Vol. 154, pp. 59-78, August 2019.
- Yiran Shen, Hongkai Wen, Chengwen Luo, Weitao Xu, **Tao Zhang**, Wen Hu, and Daniela Rus, "GaitLock: Protect Virtual and Augmented Reality Headsets Using Gait", *IEEE Transactions on Dependable and Secure Computing (TDSC)*, Vol. 16, No. 3, pp. 484-497, May 2019.
- **Tao Zhang**, Wenjun Hu, Xiapu Luo, and Xiaobo Ma, "A Commit Message-Based Bug Localization for Android Applications", *International Journal of Software Engineering and Knowledge Engineering (IJSEKE)*, Vol. 29, No. 4, pp. 457-487, April 2019.
- Zhou Xu, Jin Liu, Xiapu Luo, Zijiang Yang, Yifeng Zhang, Peipei Yuan, Yutian Tang, and **Tao Zhang**, "Software Defect Prediction Based on Kernel PCA and Weighted Extreme Learning Machine", *Information and Software Technology (IST)*, Vol. 106, pp. 182-200, February 2019.
- He Jiang, Liming Nie, Zeyi Sun, Zhilei Ren, Weiqiang Kong, **Tao Zhang**, and Xiapu Luo, "ROSF: Leveraging Information Retrieval and Supervised Learning for Recommending Code Snippets", *IEEE Transactions on Services Computing (TSC)*, Vol. 12, No. 1, pp. 34-46, January 2019.
- **Tao Zhang**, Jiachi Chen, Xiapu Luo, and Tao Li, "Bug Reports for Desktop Software and Mobile Apps in GitHub: What is the Difference?" *IEEE Software*, Vol. 36, No. 1, pp. 63-71, January 2019. (Invited to the Journal First Session of *the 33rd IEEE International Conference on Software Maintenance and Evolution (ICSME)*)
- Zhou Xu, Peipei Yuan, **Tao Zhang**, Yutian Tang, Shuai Li, and Zhen Xia, "HDA: Cross-Project Defect Prediction via Heterogeneous Domain Adaptation with Dictionary Learning", *IEEE Access*, Vol. 6, pp. 57597-57613, October 2018.
- Geunseok Yang, **Tao Zhang**, and Byungjeong Lee, "An Emotion Similarity based Severity Prediction of Software Bugs: A Case Study of Open Source Projects", *IEICE Transactions on Information and Systems*, Vol. E101-D, No. 8, pp. 2015-2026, August 2018.
- He Jiang, Najam Nazar, Jingxuan Zhang, **Tao Zhang**, and Zhilei Ren, "PRST: A PageRank-Based Summarization Technique for Summarizing Bug Reports with Duplicates", *International Journal of Software Engineering and Knowledge Engineering (IJSEKE)*, Vol. 27, No. 6, pp. 869-896, August 2017.
- Le Yu, **Tao Zhang**, Xiapu Luo, Lei Xue, and Henry Chang, "Towards Automatically Generating Privacy Policy for Android Apps", *IEEE Transactions on Information Forensics and Security (TIFS)*, Vol. 12, No. 4, pp. 865-880, April 2017.
- **Tao Zhang**, Jiachi Chen, Geunseok Yang, Byungjeong Lee, and Xiapu Luo, "Towards More Accurate Severity Prediction and Fixer Recommendation of Software Bugs", *Journal of Systems and Software (JSS)*, Vol. 117, pp. 166-184, July 2016.
- **Tao Zhang**, He Jiang, Xiapu Luo, and Alvin T.S. Chan, "A Literature Review of Research in Bug Resolution: Tasks, Challenges, and Future Directions", *The Computer Journal*, Vol. 59, No. 5, pp. 741-773, May 2016.
- **Tao Zhang**, Geunseok Yang, Byungjeong Lee, and Alvin T.S. Chan, "Guiding Bug Triage through Developer Analysis in Bug Reports", *International Journal of Software Engineering and Knowledge Engineering (IJSEKE)*, Vol. 26, No. 3, pp. 405-431, April 2016.
- **Tao Zhang** and Byungjeong Lee, "A Novel Technique for Duplicate Detection and Classification of Bug Reports", *IEICE Transactions on Information and Systems*, Vol. E97-D, No. 7, pp. 1756-1768, July 2014.
- **Tao Zhang**, Byungjeong Lee, Hanjoon Kim, and Sooyong Kang, "Folksonomy Reasoning Based Personalized Tagging and Tag Recommendation for Web Page Search", *INFORMATION-An International Interdisciplinary Journal*, Vol. 15, No. 4, pp.

1727-1743, April 2012.

International Conference Papers

- Zhou Xu, Sizhe Ye, **Tao Zhang**, Zhen Xia, Shuai Pang, Yong Wang, and Yutian Tang, "MVSE: Effort-Aware Heterogeneous Defect Prediction via Multiple-View Spectral Embedding", in *Prof. of the 19th International Conference on Software Quality, Reliability and Security (QRS'19)*, 2019, pp. 10-17.
- Xian Zhan, **Tao Zhang**, and Yutian Tang, "A Comparative Study of Android Repackaged Apps Detection Techniques", in *Prof. of the 26th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER'19)*, 2019, pp. 321-331.
- Haoming Li, **Tao Zhang**, and Ziyuan Wang, "Bug or Not Bug? Labeling Issue Reports via User Reviews for Mobile Apps", in *Proc. of the 30th International Conference on Software Engineering and Knowledge Engineering (SEKE'18)*, 2018, pp. 480-485.
- Zhou Xu, Shuai Li, Yutian Tang, Xiapu Luo, and **Tao Zhang**, Jin Liu, and Jun Xu, "Cross Version Defect Prediction with Representative Data via Sparse Subset Selection", in *Proc. of the 26th IEEE International Conference on Program Comprehension (ICPC'18)*, 2018, pp. 132-143.
- Zhou Xu, Jin Liu, Xiapu Luo, and **Tao Zhang**, "Cross-Version Defect Prediction via Hybrid Active Learning with Kernel Principal Component Analysis", in *Proc. of the 25th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER'18)*, 2018, pp. 209-220.
- **Tao Zhang**, Jiachi Chen, He Jiang, Xiapu Luo, and Xin Xia, "Bug Report Enrichment with Application of Automated Fixer Recommendation", in *Proc. of the 25th IEEE International Conference on Program Comprehension (ICPC'17)*, 2017, pp. 230-240.
- He Jiang, Jingxuan Zhang, Zhilei Ren, and **Tao Zhang**, "An Unsupervised Approach for Discovering Relevant Tutorial Fragments for APIs", in *Proc. of the 39th International Conference on Software Engineering (ICSE'17)*, 2017, pp. 38-48.
- Le Yu, Xiapu Luo, Xule Liu, and **Tao Zhang**, "Can we trust the privacy policies of Android Apps?" In *Proc. of the 46th Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN'16)*, 2016, pp. 538-549.
- Le Yu, **Tao Zhang**, Xiapu Luo, and Lei Xue, "AutoPPG: Towards Automatic Generation of Privacy Policy for Android Applications", in *Proc. of the 5th Annual ACM CCS Workshop on Security and Privacy in Smartphones and Mobile Devices (SPSM'15)*, 2015, pp. 39-50.
- He Jiang, Xin Chen, Shuwei Zhang, Xin Zhang, Weiqiang Kong, and **Tao Zhang**, "Software for Wearable Devices: Challenges and Opportunities", in *Proc. of the 39th Annual Computer Software and Applications Conference: the 1st International Workshop on Dependable Software and Applications (DSA'15)*, 2015, Vol. 3, pp. 592-597.
- **Tao Zhang**, Geunseok Yang, Byungjeong Lee, and Alvin T.S. Chan, "Predicting Severity of Bug Report by Mining Bug Repository with Concept Profile", in *Proc. of the 30th ACM Symposium on Applied Computing (SAC'15)*, 2015, pp. 1553-1558.
- **Tao Zhang**, Geunseok Yang, Byungjeong Lee, and Eng Keong Lua, "A Novel Developer Ranking Algorithm for Automatic Bug Triage Using Topic Model and Developer Relations", in *Proc. of the 21st Asia-Pacific Software Engineering Conference (APSEC'14)*, 2014, pp. 223-230.
- Geunseok Yang, **Tao Zhang**, and Byungjeong Lee, "Towards Semi-automatic Bug Triage and Severity Prediction Based on Topic Model and Multi-Feature of Bug Reports", in *Proc. of the 38th IEEE Annual International Computer Software and Applications Conference (COMPSAC'14)*, 2014, pp. 97-106.
- Geunseok Yang, **Tao Zhang**, and Byungjeong Lee, "Utilizing a Multi-Developer Network-Based Developer Recommendation Algorithm to Fix Bugs Effectively", in *Proc. of the 29th ACM Symposium on Applied Computing (SAC'14)*, 2014, pp. 1134-1139.
- Rubing Huang, Jinfu Chen, **Tao Zhang**, Rongcun Wang, and Yansheng Lu, "Prioritizing Variable-Strength Covering Array", in *Proc. of the 37th IEEE Annual International*

Computer Software and Applications Conference (COMPSAC'13), 2013, pp. 502-511.
- **Tao Zhang** and Byungjeong Lee, "A Hybrid Bug Triage Algorithm for Developer Recommendation", in *Proc. of the 28th ACM Symposium on Applied Computing (SAC'13)*, 2013, pp. 1088-1094.
- **Tao Zhang** and Byungjeong Lee, "An Automated Bug Triage Approach: A Concept Profile and Social Network Based Developer Recommendation", i*n Proc. of the 8th International Conference on Intelligence Computing (ICIC'12)*, 2012, LNCS 7389, pp. 505-512.
- **Tao Zhang** and Byungjeong Lee, "How to Recommend Appropriate Developers for Bug Fixing?" in *Proc. of the 36th IEEE Annual International Computer Software and Applications Conference (COMPSAC'12)*, 2012, pp. 170-175.
- **Tao Zhang** and Byungjeong Lee, "A Bug Rule Based Technique with Feedback for Classifying Bug Reports", in *Proc. of the 11th IEEE International Conference on Computer and Information Technology (CIT'11)*, 2011, pp. 336-343.
- Guijia He, **Tao Zhang**, Byungjeong Lee, and Jin Suk Kim, "Utilizing SSTAG: A Novel Tag Recommendation Mechanism to Web Page Search", in *Proc. of the 11th IEEE International Conference on Computer and Information Technology (CIT'11)*, 2011, pp. 455-460.
- **Tao Zhang** and Byungjeong Lee, "Complementary Classification Technique Based Personalized Software Requirements Retrieval with Semantic Ontology and User Feedback", in *Proc. of the 10th IEEE International Conference on Computer and Information Technology (CIT'10)*, 2010, pp. 1358-1363.
- **Tao Zhang**, Byungjeong Lee, Hanjoon Kim, Sooyong Kang, and Kyoonyun Kim, "Utilizing Personalized Tag Recommendation Model in Web Page Search", in *Proc. of the 24th International Conference on Information Networking (ICOIN'10)*, 2010.
- **Tao Zhang**, Byungjeong Lee, Sooyong Kang, Hanjoon Kim, and Jinseog Kim, "Collective Intelligence-Based Web Page Search: Combining Folksonomy and Link-Based Ranking Strategy", in *Proc. of the 9th IEEE International Conference on Computer and Information Technology (CIT'09)*, 2009, pp. 166-171.

Patents
- **Tao Zhang**, Jiachi Chen, and Xiapu Luo, "A Bug Localization Method for Mobile Apps Based on User Reviews", *Chinese Patent*, No. ZL-2018-1-0509592.8, 2019.
- Byungjeong Lee, **Tao Zhang**, and Geunseok Yang, "System and Method for Recommending Bug Fixing Developers Based on Multi-Developer Network", *Korean Patent*, No. 10-1697992, 2017.
- Byungjeong Lee, **Tao Zhang**, and Geunseok Yang, "System and Method for Bug Fixing Developers Recommendation and Bug Severity Prediction Based on Topic Model and Multi-Feature", *Korean Patent*, No. 10-1691083, 2016.
- Byungjeong Lee and **Tao Zhang**, "A Hybrid Bug Triage System and Method for Recommending Bug Fixing Developers", *Korean Patent*, No. 10-1538131, 2015.
- Byungjeong Lee and **Tao Zhang**, "Method for Recommending Appropriate Developers for Software Bug Fixing and Apparatus Thereof", *Korean Patent*, No. 10-1390220, 2014.
- Byungjeong Lee, **Tao Zhang**, and Hanjoon Kim, "System and Method for Utilizing Personalized Tag Recommendation Model in Web Page Search", *Korean Patent*, No. 10-1137491, 2012.
- Byungjeong Lee, **Tao Zhang**, and Hanjoon Kim, "Method of Searching Web Pages Based on a Collective Intelligence Using Folksonomy and Linked-Based Ranking Strategy, and System for Performing the Method", *Korean Patent*, No. 10-1132393, 2012.

Language and Technical Ability
- **Chinese:** Native Language
- **English:** Proficiency in Listening, Speaking, Reading, and Writing
- **Korean:** Elementary Proficiency

- **Programming Language:** Proficiency in Python, C++, C#, Java, and R
- **Development Tool:** Proficiency in VS, NetBeans, MATLAB, and Eclipse

Hobby
- Reading, Skating, Mountaineering, and Photography