彭超

北京市海淀区大钟寺广场字节跳动

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教育经历

爱丁堡大学   英国爱丁堡
博士研究生：信息学 - 计算机基础科学 - 软件工程方向   2017年9月2021年11月
- 爱丁堡大学信息学院博士全额奖学金   导师：Dr. Ajitha Rajan
- 科研领域:
  - GPU程序的覆盖度量方法和自动测试用例生成，
  - 区块链智能合约程序分析，
  - 安卓图形界面测试。

爱丁堡大学   英国爱丁堡
硕士研究生：高性能计算与数据科学   2016年9月至2017年8月
- 毕业论文: FEniCS Performance Investigation and Porting miniDFT to GPU Clusters（FEniCS的性能探究以及使用GPU集群加速miniDFT）
- 国际计算集群竞赛决赛成就奖

徐州工程学院   中国徐州
工学学士：计算机科学与技术   2012年9月至2016年6月
- 国家奖学金2次，国家励志奖学金1次
- 院系学生会主席

工作经历

字节跳动   2021年7月5日至今
Software Engineering Lab   中国北京
- 职位：首席研究科学家

复旦大学   2022年3月2日至今
计算机科学技术学院   中国上海
- 职位：专业硕士行业导师

实习经历

华为爱丁堡研发中心   2020年11月23日至2021年6月22日
2012实验室编程语言实验室   英国爱丁堡
- 主管: Dan Ghica, 编程语言实验室负责人
- 职责: 编译器实现与优化。编译器后端性能测试。

华为伦敦研发中心   2019年10月28日至2020年2月28日
2012实验室海思麒麟GPU   英国伦敦
- 主管：Graham Connor，首席GPU科学家
- 职责：GPU微性能基准测试框架的架构设计，框架的编译系统设计与实现，具体测试用例的设计与实现

论文发表

预印 / 审稿中

5. Trae Research Team. *Trae Agent: An LLM-based Agent for Software Engineering with Test-time Scaling.* arXiv:2507.23370

4. Xinghang Li, Jingzhe Ding, **Chao Peng**, Bing Zhao, Xiang Gao, Hongwan Gao, Xinchen Gu (2025). *SafeGenBench: A Benchmark Framework for Security Vulnerability Detection in LLM-Generated Code.* arXiv:2506.05692

3. Chen, Jialiang, Kaifa Zhao, Jie Liu, **Chao Peng**, Jierui Liu, Hang Zhu, Pengfei Gao, Ping Yang, Shuiguang Deng (2024). *CoReQA: Uncovering Potentials of Language Models in Code Repository Question Answering.*

2. Guan, Zhanming, Junlin Liu, Jierui Liu, **Chao Peng**, Dexin Liu, Ningyuan Sun, Bo Jiang, Wenchao Li, Jie Liu, and Hang Zhu (2024). *ContextModule: Improving Code Completion via Repository-level Contextual Information.*

<div align="right">arXiv:2501.03447</div>

1. Liu, Yizhou, Pengfei Gao, Xinchen Wang, Jie Liu, Yexuan Shi, Zhao Zhang, **Chao Peng** (2024). *MarsCode Agent: AI-native Automated Bug Fixing.*

<div align="right">arXiv:2412.08063
arXiv:2409.00899</div>

同行评议论文

32. Wei Liu, **Chao Peng**, Pengfei Gao, Aofan Liu, Wei Zhang, Haiyan Zhao, Zhi Jin (2025). *GraphLocator: Graph-guided Causal Reasoning for Issue Localization.* In FSE 2026. <div align="right">To appear.</div>

31. Yuan-an Xiao, Pengfei Gao, **Chao Peng**, Yingfei Xiong (2025). *Reducing Cost of LLM Agents with Trajectory Reduction.* In FSE 2026. <div align="right">To appear.</div>

30. Zhao Tian, Pengfei Gao, Junjie Chen, **Chao Peng** (2025). *Agent-Based Ensemble Reasoning for Repository-Level Issue Resolution.* In ICSE 2026. <div align="right">To appear.</div>

29. Pengfei Gao, **Chao Peng** (2025). *More with Less: An Empirical Study of Turn-Control Strategies for Efficient Coding Agents.* In ICSE 2026. <div align="right">To appear.</div>

28. Zexiong Ma, **Chao Peng**, Qunhong Zeng, Pengfei Gao, Yanzhen Zou, Bing Xie (2025). *Enhancing Issue Localization Agent with Tool-Interactive Training.* In ICSE 2026. <div align="right">To appear.</div>

27. Meng, Xiangxin, Zexiong Ma, Pengfei Gao, **Chao Peng** (2025). *An Empirical Study on LLM-based Agents for Automated Bug Fixing.* In ICSE 2026. <div align="right">To appear.</div>

26. Hu, Ruida, **Chao Peng**, Xinchen Wang, and Cuiyun Gao (2025). *Repo2Run: Automated Building Executable Environment for Code Repository at Scale.* In NeurIPS 2025 **Spotlight Paper** <div align="right">December 2025.</div>

25. Wang, Xinchen and Gao, Pengfei and **Peng, Chao** and Hu, Ruida and Gao, Cuiyun (2025). *CodeVisionary: An Agent-based Framework for Evaluating Large Language Models in Code Generation.* In ASE 2025. November 2025.

24. Wu, Qinyun, **Chao Peng**, Pengfei Gao, Ruida Hu, Haoyu Gan, Bo Jiang, Jinhe Tang, Zhiwen Deng, Zhanming Guan, Cuiyun Gao, Xia Liu, Ping Yang (2025). *RepoMasterEval: Evaluating Code Completion via Real-World Repositories.* In ASE 2025 Industry Track. <div align="right">November 2025.</div>

23. Tsimpourlas, Foivos, **Chao Peng**, Carlos Rosuero, Ping Yang, Ajitha Rajan (2025). *Go-Oracle: Automated Test Oracle for Go Concurrency Bugs.* In ESEM 2025. <div align="right">October 2025.</div>

22. Ma, Zexiong, **Chao Peng**, Pengfei Gao, Xiangxin Meng, Yanzhen Zou, and Bing Xie (2025). *SoRFT: Issue Resolving with Subtask-oriented Reinforced Fine-Tuning.* In ACL 2025. <div align="right">July 2025.</div>

21. Ruida Hu, **Chao Peng**, Jingyi Ren, Bo Jiang, Xiangxin Meng, Qinyun Wu, Pengfei Gao, Xinchen Wang and Cuiyun Gao (2025). *Understanding Large Language Model Performance in Software Engineering: A Large-scale Question Answering Benchmark.* In SIGIR 2025 Short Paper Track. <div align="right">July 2025</div>

20. Xinchen Wang, Pengfei Gao, Xiangxin Meng, **Chao Peng**, Ruida Hu, Yun Lin, Cuiyun Gao (2025). *AEGIS: An Agent-based Framework for Bug Reproduction from Issue Descriptions.* In FSE 2025 Industry Track.

<div align="right">June 2025</div>

19. Li, Bowen, Wenhan Wu, Ziwei Tang, Lin Shi, John Yang, Jinyang Li, Shunyu Yao, Chen Qian, Binyuan Hui, Qicheng Zhang, Zhiyin Yu, He Du, Ping Yang, Dahua Lin, **Chao Peng**, Kai Chen (2025). *Prompting Large Language Models to Tackle the Full Software Development Lifecycle: A Case Study.* In proceedings of the 31st International Conference on Computational Linguistics (COLING 2025). <div align="right">January 2025</div>

18. Liang, Xiaoyun, Jingyi Ren, Jiayi Qi, **Chao Peng**, and Bo Jiang. *DialogAgent: An Auto-engagement Agent for Code Question Answering Data Production.* In ICSE 2025 SEIP Track <div align="right">April 2024</div>

17. **Chao Peng**, Qinyun Wu, Jiangchao Liu, Jierui Liu, Bo Jiang, Mengqian Xu, Yinghao Wang, Xia Liu, Ping Yang (2024). *RepoSim: Evaluating Prompt Strategies for Code Completion via User Behavior Simulation.* In proceedings of the 39th IEEE/ACM International Conference on Automated Software Engineering (ASE 2024), New Idea and Emerging Results Track <div align="right">October 2024</div>

16. Zhu Tao, Yongqiang Gao, Jiayi Qi, **Chao Peng**, Qinyun Wu, Xiang Chen, Ping Yang (2024). *Neat: Mobile App Layout Similarity Comparison based on Graph Convolutional Networks.* In proceedings of the ACM International Conference on the Foundations of Software Engineering (FSE 2024), Industry Track July 2024

15. **Chao Peng**, Zhengwei Lv, Jiarong Fu, Jiayuan Liang, Zhao Zhang, Ajitha Rajan, Ping Yang(2024). *Hawkeye: Change-targeted Testing for Android Apps based on Deep Reinforcement Learning.* In proceedings of the 46th IEEE/ACM International Conference on Software Engineering, Software Engineering in Practice

Track (ICSE SEIP 2024)   April 2024

14. Xiaoyun Liang, Jiayi Qi, Yongqiang Gao, **Chao Peng**, Ping Yang (2023). *AG3: Automated Game GUI Text Glitch Detection based on Computer Vision.* In proceedings of the 2023 ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2023) December 2023

13. Zongze Jiang, Ming Wen, Yixin Yang, **Chao Peng**, Ping Yang, Hai Jin, (2023). *Effective Concurrency Testing for Go via Directional Primitive-constrained Interleaving Exploration.* In proceedings of the 38th IEEE/ACM International Conference on Automated Software Engineering (ASE 2023)   September 2023

12. Siwei Wang, Xue Mao, Ziguang Gao, Yujun Gao, Qucheng Shen, **Chao Peng** (2023). *NxtUnit: Automated Unit Test Generation for Go.* In proceedings of the 27th International Conference on Evaluation and Assessment in Software Engineering (EASE 2023).   June 2023

11. Jingling Sun, Ting Su, Kai Liu, **Chao Peng**, Zhao Zhang, Geguang Pu, Tao Xie, and Zhendong Su (2022). *Characterizing and Finding SystemSetting-Related Defects in Android Apps.* IEEE Transactions on Software Engineering (TSE).   April 2023

10. Zhengwei Lv, **Chao Peng**, Zhao Zhang, Ting Su, Kai Liu, Ping Yang. *Fastbot2: Reusable Automated Model-based GUI Testing for Android Enhanced by Reinforcement Learning.* In proceedings of the 37th IEEE/ACM International Conference on Automated Software Engineering (ASE 2022) Industry Showcase Track.

October 2022

9. Chao Peng, Zhao Zhang, Zhengwei Lv and Ping Yang. *MUBot: Learning to Test Large-Scale Commercial Android Apps like a Human.* In proceedings of the 38th International Conference on Software Maintenance and Evolution (ICSME 2022) Industry Track   October 2022

8. Chao Peng, Yujun Gao and Ping Yang. *Automated Server Testing: an Industrial Experience Report.* In proceedings of the 38th International Conference on Software Maintenance and Evolution (ICSME 2022) Industry Track   October 2022

7. Sefa Akca, **Chao Peng**, Ajitha Rajan. *Testing Smart Contracts: Which Technique Performs Best?* In proceedings of the 15th ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (ESEM 2021)   October 2021

6. Chao Peng, Ajitha Rajan, Tianqin Cai. *CAT: Change-focused Android GUI Testing.* In proceedings of the 37th International Conference on Software Maintenance and Evolution (ICSME 2021)   September 2021

5. Chao Peng, Ajitha Rajan. *Automated Test Generation for OpenCL Kernels using Fuzzing and Constraint Solving.* In proceedings of the 11th Workshop on General Purpose GPUs 2020 (GPGPU @ PPoPP)

Feburary 2020

4. Chao Peng, Sefa Akca, Ajitha Rajan. *SIF: A Framework for Solidity Contract Instrumentation and Analysis.* In proceedings of the the 26th Asia-Pacific Software Engineering Conference (APSEC 2019). December 2019

3. Sefa Akca, Ajitha Rajan, **Chao Peng**. *SolAnalyser: A Framework for Analysing and Testing Smart Contracts.* In proceedings of the the 26th Asia-Pacific Software Engineering Conference (APSEC 2019). December 2019

2. Chao Peng. *On the Correctness of GPU Programs.* In proceedings of the 2019 ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA 2019).   July 2019

1. Chao Peng, Ajitha Rajan. *CLTestCheck: Measuring Test Effectiveness for GPU Kernels.* In proceedings of the 22nd International Conference on Fundamental Approaches to Software Engineering (FASE 2019).

April 2019

科研会议

组织/指导委员会	AI-IDE@FSE'25, APR@ICSE'25, AIware
PC Co-chair	AIware'26, FORGE'26 Industry Track
程序委员会 （**Research/Technical Track**）	ASE'26, ISSTA'26, LLM4Code'26, FSE'26, ASE'25, LLM4Code'25, FSE'25, MSR'23(Junior PC), A-Mobile'22, PRDC'22
程序委员会 （**Industry Track**）	SANER'26, ASE'25, ISSRE'24, APSEC'24, MSR'24
程序委员会 （**Artifact Evaluation**）	OSDI'22, USENIX ATC'22, ISSTA'22, 21, 20
学生志愿者	PLDI'20, ISSTA'19, ETAPS'19
论文审稿人	ICSE'19 SEIP (Software Engineering in Practice) Track

相关技能

外语	英语 - 流利
	德语 - 基础
技术	编程语言: C/C++, Java, Fortran, Python, Kotlin, Rust, Go
	并行计算: OpenMP, MPI, OpenCL, CUDA, SYCL
	程序分析: JavaSoot, Clang LibTooling
	图形编程: OpenGL (ES), Vulkan
工具	LaTeX, Git, SVN, CMake, Gradle

教学经历

硕士毕业设计
硕士生导师助理

2018年4月至2018年8月，2019年4月至2019年8月
爱丁堡大学信息学院

负责辅助指导以下硕士研究生的毕业设计

- Bowen Du: Code coverage measurement for GPU Programs
- Yangning Li: Random test case generation for OpenCL programs

软件测试
助教，辅导，作业与考试阅卷

2018年1月至2018年4月，2019年1月至2019年4月，2021年1月至2021年4月
爱丁堡大学信息学院

计算机编程概念与技能
作业与考试阅卷

2017年11月至2017年12月，2018年12月至2019年1月
爱丁堡大学信息学院

Java程序设计
实验课辅导

2017年9月至2017年12月，2018年9月至2018年12月
爱丁堡大学信息学院

在本课程的教学过程中被提名为爱丁堡大学优秀教师奖

奖学金与荣誉称号

奖学金

- 爱丁堡大学信息学院**博士全额奖学金**   2017年4月
- 2014/15学年**国家奖学金**   2015年11月
- 2013/14学年**国家励志奖学金**   2014年11月
- 2012/13学年**国家奖学金**   2013年11月