

# CHAO PENG

ByteDance, Dazhongsi Square, Haidian District, Beijing, China

chao.peng@acm.org

## EDUCATION

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- University of Edinburgh** **Edinburgh, UK**  
**PhD in Informatics (Software Engineering)** September 2017 - November 2021  
Supervised by Dr. Ajitha Rajan
- Fully funded by the School of Informatics Scholarship
  - Research fields:
    - Coverage metrics and test case generation for GPU programs,
    - Program analysis of smart contracts,
    - Android GUI testing.
- University of Edinburgh** **Edinburgh, UK**  
**MSc in High Performance Computing with Data Science** September 2016 - August 2017
- Thesis: FEniCS Performance Investigation and Porting miniDFT to GPU Clusters
  - Received Achievement Award of the 6th Annual HPCAC Student Cluster Competition
- Xuzhou University of Technology** **Xuzhou, China**  
**BSc in Computer Science and Technology** September 2012 - June 2016
- Awarded 2 × National Scholarship by Ministry of Education of China
  - Awarded National Encouragement Scholarship by Department of Education of Jiangsu Province
  - Awarded Honored Undergraduate of Xuzhou University of Technology
  - President of the Student Union of School of Information & Electrical Engineering

## WORK EXPERIENCE

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- ByteDance** 05 Jul 2021 - Present  
*Software Engineering Lab* *Beijing, China*
- Position: Tech Expert / Senior Researcher
- Fudan University** 02 Mar 2022 - Present  
*School of Computer Science* *Shanghai, China*
- Position: Part-time Postgraduate Student Mentor

## INTERNSHIP EXPERIENCE

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- Huawei Edinburgh Research Centre** 23/11/2020 - 22/06/2021  
*Programming Languages Lab, 2021 Laboratories* *Edinburgh, UK*
- Mentor: Dan Ghica, Head of PL Lab
  - Duties: Compiler backend testing and benchmarking. Compiler implementation and optimisation.
- Huawei London Research Centre** 28/10/2019 - 28/02/2020  
*Hisilicon Kirin GPU Team, 2012 Laboratories* *London, UK*
- Mentor: Graham Connor, Chief GPU Scientist
  - Duties: Design of the layout of the benchmarking framework, implementation of the build system and cross-platform support, design and implementation of GPU micro-benchmarks.

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 To appear
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). *Hawk-eye: 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). *NextUnit: 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) February 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

## PROFESSIONAL SERVICE

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<b>Organising Committee</b>	APR 2025
<b>PC Member (Research/Technical Track)</b>	FSE 2025, MSR 2023(Junior PC), A-Mobile 2022, PRDC 2022
<b>PC Member (Industry Track)</b>	ISSRE 2024, APSEC 2024, MSR 2024
<b>PC Member (Artifact Evaluation)</b>	OSDI 2022, USENIX ATC 2022, ISSTA 2022, 2021, 2020
<b>Student Volunteer</b>	PLDI 2020, ISSTA 2019, ETAPS 2019
<b>Reviewer</b>	ICSE 2019 SEIP (Software Engineering in Practice) Track

## SKILLS

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<b>Languages</b>	Mandarin Chinese - Native English - Proficient German - Basic
<b>Technical Skills</b>	Programming languages: C/C++, Java, Fortran, Python, Kotlin, Rust, Go Parallel programming: OpenMP, MPI, OpenCL, CUDA, SYCL Program Analysis: Java Soot, Clang LibTooling Computer Graphics: OpenGL (ES), Vulkan
<b>Tools</b>	L <sup>A</sup> T <sub>E</sub> X, Git, SVN, CMake, Gradle

## TEACHING EXPERIENCE

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<b>MSc Projects</b> <i>Sub-supervisor for MSc Projects</i>	Apr 18 - Aug 18 and Apr 19 - Aug 19 <i>School of Informatics, University of Edinburgh</i>
Helping supervise the following MSc students for their projects:	
<ul style="list-style-type: none"><li>• Bowen Du: Code coverage measurement for GPU programs</li><li>• Yangning Li: Random test case generation for OpenCL programs</li></ul>	
<b>Software Testing</b> <i>Teaching Assistant, Tutor and Marker</i>	Jan 18 - Apr 18, Jan 19 - Apr 19 and Jan 21 - Apr 21 <i>School of Informatics, University of Edinburgh</i>
<b>Computer Programming Skills and Concepts</b> <i>Marker</i>	Nov 17 - Dec 17 and Dec 18 - Jan 19 <i>School of Informatics, University of Edinburgh</i>
<b>Introduction to Java Programming</b> <i>Demonstrator</i>	Sep 17 - Dec 17 and Sep 18 - Dec 18 <i>School of Informatics, University of Edinburgh</i>
Nominated for Teaching Awards by students of this course	

## SCHOLARSHIPS & HONOURS

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### SCHOLARSHIPS

- School of Informatics Scholarship (fully-funded PhD scholarship) Apr 17
- Outstanding Undergraduate Scholarship Jun 16
- China National Scholarship of the 2014/15 Academic Year Nov 15
- China National Encouragement Scholarship of the 2013/14 Academic Year Nov 14
- China National Scholarship of the 2012/13 Academic Year Nov 13

### AWARDS

- Nomination for Teaching Awards: Best Student Who Tutors Award Feb 18
- Certificate of Achievement for Participating in the 6th Annual HPCAC Student Cluster Competition Jun 17
- Distinct Graduate of Xuzhou University of Technology Jun 16
- Top Ten Role Models of Learning at Xuzhou University of Technology Mar 16
- Jiangsu Province-level Excellent Student Cadre May 15