

# Dong Huang

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## EDUCATION

- Ph.D. Computer Science, HKU, 2021.9-2024.12  
B.S. Materials Forming and Control Engineering, HUST, 2017.9-2021.6

## RESEARCH AREAS

I am generally interested in natural language processing and computer vision, which caused me to consider improving the effectiveness of LLMs, VLLMs, and MLLMs. Current interests are in several aspects around large language models:

- Security: Adversarial and Backdoor Safety
- Inference: Correctness, Efficiency, and Fairness

## PUBLICATIONS \* MEANS CORRESPONDING AUTHOR

### Selected Preprints

- 2023 **Huang, Dong**, Qingwen Bu, Jie M. Zhang, Michael Luck, and Heming Cui. "Agent-EffiCoder: Multi-agent-based code generation with iterative testing and optimisation." arXiv preprint arXiv:2312.13010 (2023).
- 2023 **Huang, Dong**, Guangtao Zeng, Jianbo Dai, Meng Luo, Han Weng, Yuhao QING, Heming Cui, Zhijiang Guo, Jie Zhang "EffiCoder: Unleashing Code Efficiency in Language Models." ICLR 2025 under review.
- 2024 **Huang, Dong**, Jie M. Zhang, Mingzhe Du, Mark Harman, and Heming Cui. "Rethinking the Influence of Source Code on Test Case Generation." (2024).
- 2023 **Huang, Dong**, Qingwen Bu, Jie Zhang, Xiaofei Xie, Junjie Chen, and Heming Cui. "Bias assessment and mitigation in llm-based code generation." arXiv preprint arXiv:2309.14345 (2023).
- 2023 **Huang, Dong**, Qingwen Bu, and Heming Cui. "Codecot and beyond: Learning to program and test like a developer." arXiv preprint arXiv:2308.08784 (2023).
- 2023 **Huang, Dong**, Qingwen Bu, Yuhao Qing, Yichao Fu, and Heming Cui. "Feature Map Testing for Deep Neural Networks." arXiv preprint arXiv:2307.11563 (2023).

### Journal Articles

- 2024 Junming Wang, Zekai Sun, Xiuxian Guan, Tianxiang Shen, **Dong Huang**, Zongyuan Zhang, Tianyang Duan, Fangming Liu, Heming Cui. "HE-Nav: A High-Performance and Efficient Navigation System for Aerial-Ground Robots in Cluttered Environments." IEEE Robotics and Automation Letters (RA-L). **RA-L 2024 CCFB in AI**
- 2024 **Huang, Dong**, Qingwen Bu, Yichao Fu, Yuhao Qing, Xiaofei Xie, Junjie Chen, and Heming Cui. "Neuron Sensitivity Guided Test Case Selection." ACM Transactions on Software Engineering and Methodology. **TOSEM 2024 Journal Version CCFA in SE**

- 2021 Shixiong Zhao, Fanxin Li, Xusheng Chen, Xiuxian Guan, Jianyu Jiang, **Dong Huang**, Yuhao Qing, Sen Wang, Peng Wang, Gong Zhang, Cheng Li, Ping Luo, Heming Cui. "v pipe: A virtualized acceleration system for achieving efficient and scalable pipeline parallel dnn training." IEEE Transactions on Parallel and Distributed Systems 33, no. 3 (2021): 489-506. **TPDS 2021 CCFA in System**
- 2021 Ji, Xiaoyuan, Qiuyu Yan, **Dong Huang**, Bo Wu, Xiaojing Xu, Aibin Zhang, Guanglan Liao, Jianxin Zhou, and Menghuai Wu. "Filtered selective search and evenly distributed convolutional neural networks for casting defects recognition." Journal of Materials Processing Technology 292 (2021): 117064. **JMPT 2021 SCI-Q1**

### Conference Proceedings

- 2024 **Huang, Dong**, Yuhao Qing, Weiyi, Shang, Heming Cui, and Jie M. Zhang. "EffiBench: Benchmarking the Efficiency of Automatically Generated Code." arXiv preprint arXiv:2402.02037 (2024). **NeurIPS 2024 CCFA in AI**
- 2024 **Huang, Dong**, Jianbo Dai, Han Weng, Puzhen Wu, Yuhao Qing, Jie M. Zhang, Heming Cui, and Zhijiang Guo. "SOAP: Enhancing Efficiency of Generated Code via Self-Optimization." arXiv preprint arXiv:2405.15189 (2024). **NeurIPS 2024 CCFA in AI**
- 2024 **Dong Huang**, Qingwen Bu, Yichao Fu, Yuhao Qing, Xiaofei Xie, Junjie Chen, and Heming Cui. "Neuron Sensitivity Guided Test Case Selection." arXiv preprint arXiv:2307.11011 (2023). **ASE 2024 Conference Version CCFA in SE**
- 2024 **Dong Huang**, Li, Tsz On, Xiaofei Xie, and Heming Cui. "Themis: Automatic and Efficient Deep Learning System Testing with Strong Fault Detection Capability." arXiv preprint arXiv:2405.09314 (2024). **ISSRE 2024 CCFB in SE**
- 2024 **Dong Huang**, Qingwen Bu, Yuhao Qing, Yichao Fu, Heming Cui. "Adversarial Feature Map Pruning for Backdoor." In The Twelfth International Conference on Learning Representations. **ICLR 2024**
- 2023 Bu, Qingwen, **Dong Huang\***, and Heming Cui. "Towards building more robust models with frequency bias." In Proceedings of the IEEE/CVF International Conference on Computer Vision, pp. 4402-4411. 2023. **ICCV 2023, Corresponding Author CCF-A in AI**
- 2024 Wang, Junming, Zekai Sun, Xiuxian Guan, Tianxiang Shen, Zongyuan Zhang, Tianyang Duan, **Dong Huang**, Shixiong Zhao, and Heming Cui. "AGRNav: Efficient and Energy-Saving Autonomous Navigation for Air-Ground Robots in Occlusion-Prone Environments." arXiv preprint arXiv:2403.11607 (2024). **ICRA 2024 CCF-B in AI**

## RESEARCH COLLABORATIONS

### Research Supervisor and Collaborator

Dr.Heming Cui	Associate Professor at the HKU (Primary Supervisor)
Dr.Jie M. Zhang	Lecturer (equivalent to Assistant Professor) at KCL (Joint Supervisor)
Dr.Xiaofei Xie	Assistant Professor at SMU
Dr.Junjie Chen	Associate Professor at TJU
Dr.Michael Luck	Professor at KCL and Deputy Vice-Chancellor and Provost at the University of Sussex
Dr.Weiyi Shang	Associate Professor at the University of Waterloo
Dr.Mark Harman	Professor at UCL and Research Scientist at Meta
Dr.Zhijiang Guo	Incoming Assistant Professor at HKUST (GZ)

## Research Mentoring

Qingwen Bu	Undergrad at HUST, to PhD at SJTU
Zenghao Si	Master at ZJU
Meng Luo	Master at NUS
Junming Wang	Mphil at HKU, to Horizon Robotics
Zhiguang Han	Undergrad at NTU
Weng Han	Master at BUPT
Puzhen Wu	Undergrad at UCD

## TEACHING

2024 COMP7506A/B: Smart phone apps development

2025 COMP7506A/B: Smart phone apps development

## MEDIA COVERAGE

AgentCoder: AI Index Report 2024, Build Your Own Devin!

## Patents

2021 Tsz On Li, Dong Huang, Heming Cui, Sen Wang, Li Chen, Gong Zhang. *Themis: Automatic and Efficient Deep Learning System Testing with Strong Fault Detection Capability*. Chinese patent CN 202111372034.X.

Updated September 2024