

刘名威

Curriculum Vitae

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自我介绍

刘名威博士目前是中国复旦大学的博士后研究员。他分别于 2017 年和 2022 年在复旦大学获得了软件工程学士和博士学位，导师为彭鑫教授。他的研究专注于软件工程（SE）与人工智能（AI）的交叉领域，特别是 AI4SE 和 SE4AI 领域。刘博士主要关注于利用先进的 AI 技术，如大型语言模型和知识图谱，解决软件工程挑战，并应对 AI 应用和场景中普遍存在的软件工程和系统工程问题。

教育经历

- 2017–2022: 软件工程博士学位, 复旦大学计算机科学技术学院, 上海, 中国.
2013–2017: 软件工程学士学位, 复旦大学软件学院, 上海, 中国.

研究经历

复旦大学软件工程实验室, 博士后研究员

2022.6-至今 基于大型语言模型的软件开发智能化.

利用大型语言模型（如 ChatGPT、LLaMa、StarCoder、CodeT5、CodeGen）的能力，提升软件开发的各个方面，包括代码生成、漏洞检测与修复、软件工程中的自然语言理解以及自动化软件测试。

2022.6-至今 AI 应用的智能化构建与演化.

为 AI 应用的开发和演化提供智能化支持，特别关注基于生成式 AI 的应用，如 ChatGPT。

复旦大学软件工程实验室, 博士研究生

2018.7- 基于软件开发知识图谱的自动问答.

2022.7 通过分析 API 文档和技术问答网站等不同来源，构建软件开发知识图谱，并基于知识图谱实现自动问答系统。

导师: 彭鑫教授, 复旦大学计算机科学技术学院副院长, ([个人主页](#))

荣誉和奖励

- 2022 上海市普通高等学校优秀毕业生
2022 上海市“超级博士后”激励计划资助
2021 复旦大学启明星辰奖学金
2019 复旦大学华为威睿奖学金
2018 IEEE TCSE 杰出论文奖 (ICSME 2018)

项目经历

- 2022-2024 中国科学技术部重点研发项目 (2021ZD0112903), 基于人机协作的复杂智能软件系统构造与演化技术, 主要参与者
- 2020-2023 中国国家自然科学基金 (项目编号 61972098), 基于 API 知识的软件开发问答及资源推荐, 主要参与者
- 2023 企业合作项目 (华为), 代码推荐技术合作项目, 主要负责人
- 2023 企业合作项目 (腾讯), 代码预训练模型数据质量保障项目, 主要负责人
- 2022 企业合作项目 (华为), 智能辅助编程二期合作, 主要负责人
- 2022 企业合作项目 (荣耀), 代码知识图谱与智能辅助合作项目, 主要负责人
- 2020 企业合作项目 (华为), 智能辅助编程一期合作, 主要负责人
- 2019 企业合作项目 (华为), 智能 YAML 接口推荐, 主要负责人

出版物

学术期刊论文

顶级期刊统计: TSE (2 篇), TOSEM (1 篇); 第一作者 (2 篇)

- [J5]-2023 **Mingwei Liu**, Chengyuan Zhao, Xin Peng, Simin Yu, Haofen Wang, and Chaofeng Sha. Task-oriented ML/DL Library Recommendation based on a Knowledge Graph. IEEE Transactions on Software Engineering (TSE 2023), to appear, 2023
- [J4]-2023 Chong Wang, Xin Peng, Zhenchang Xing, Yue Zhang, **Mingwei Liu**, Rong Luo, and Xiujie Meng. Xcos: Explainable Code Search based on Query Scoping and Knowledge Graph. ACM Transactions on Software Engineering and Methodology (TOSEM 2023), to appear, 2023
- [J3]-2022 杜雪盈, **刘名威 ***, 沈立炜, 彭鑫. 面向链接预测的知识图谱表示学习方法研究综述. 软件学报 2023, 出版中
- [J2]-2022 **Mingwei Liu**, Xin Peng, Andrian Marcus, Shuangshuang Xing, Christoph Treude, and Chengyuan Zhao. API-related Developer Information Needs in Stack Overflow. IEEE Transactions on Software Engineering (TSE 2022), volume 48, pages 4485–4500, 2022.
- [J1]-2021 邢双双, **刘名威**, 彭鑫. 基于软件知识图谱的代码语义标签自动生成方法. 软件学报 2021, 33(11), 4027-4045, 2021

学术会议论文

顶级会议统计: FSE (7 篇), ASE (2 篇), ICSME (2 篇); 第一作者 (6 篇), 通讯作者 (1 篇)

- [C15]-2023 **Mingwei Liu**, Tianyong Yang, Yiling Lou, Xueying Du, Ying Wang, and Xin Peng. Code-Gen4Libs: A Two-stage Approach for Library-oriented Code Generation. In Proceedings of the 38th IEEE/ACM International Conference on Automated Software Engineering (ASE 2023), to appear, September 2023

- [C14]-2023 **Mingwei Liu**, Yanjun Yang, Yiling Lou, Xin Peng, Zhong Zhou, Xueying Du, and Tianyong Yang. Recommending Analogical APIs via Knowledge Graph Embedding. In Proceedings of the 31th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2023), to appear, December 2023.
- [C12]-2023 **Mingwei Liu**, Simin Yu, Xin Peng, Xueying Du, Tianyong Yang, Huanjun Xu, and Gaoyang Zhang. Knowledge Graph based Explainable Question Retrieval for Programming Tasks. In Proceedings of the 39th IEEE International Conference on Software Maintenance and Evolution (ICSME 2023), to appear, October 2023.
- [C11]-2022 **Mingwei Liu**, Xin Peng, Andrian Marcus, Christoph Treude, Jiazhan Xie, Huanjun Xu, and Yanjun Yang. How to Formulate Specific How-to Questions in Software Development? In Proceedings of the 30th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2022), Singapore, Singapore, November 14-18, 2022, pages 306-318. ACM, 2022
- [C10]-2021 **Mingwei Liu**, Xin Peng, Andrian Marcus, Christoph Treude, Xuefang Bai, Gang Lyu, Jiazhan Xie, and Xiaoxin Zhang. Learning-based Extraction of First-order Logic Representations of API Directives. In Proceedings of the 29th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2021), Athens, Greece, August 23-28, 2021, pages 491-502. ACM, 2021.
- [C9]-2020 Wenkai Xie, Xin Peng, **Mingwei Liu**, Christoph Treude, Zhenchang Xing, Xiaoxin Zhang, and Wenyun Zhao. API Method Recommendation via Explicit Matching of Functionality Verb Phrases. In Proceedings of the 28th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2020), Virtual Event, USA, November 8-13, 2020, pages 1015-1026. ACM, 2020.
- [C8]-2020 **Mingwei Liu**, Yanjun Yang, Xin Peng, Chong Wang, Chengyuan Zhao, Xin Wang, and Shuangshuang Xing. Learning based and Context Aware Non-informative Comment Detection. In Proceedings of the 36th IEEE International Conference on Software Maintenance and Evolution (ICSME 2020), Adelaide, Australia, September 28 - October 2, 2020, pages 866–867. IEEE, 2020.
- [C7]-2020 **Mingwei Liu**, Xin Peng, Xiujie Meng, Huanjun Xu, Shuangshuang Xing, Xin Wang, Yang Liu, and Gang Lv. Source Code based On-demand Class Documentation Generation. In Proceedings of the 36th IEEE International Conference on Software Maintenance and Evolution (ICSME 2020), Adelaide, Australia, September 28 - October 2, 2020, pages 864–865. IEEE, 2020.
- [C6]-2020 Yang Liu, **Mingwei Liu**, Xin Peng, Christoph Treude, Zhenchang Xing, and Xiaoxin Zhang. Generating Concept based API Element Comparison Using a Knowledge Graph. In 35th IEEE/ACM International Conference on Automated Software Engineering (ASE 2020), Melbourne, Australia, September 21-25, 2020, pages 834-845. IEEE, 2020.

- [C5]-2019 Chong Wang, Xin Peng, **Mingwei Liu**, Zhenchang Xing, Xuefang Bai, Bing Xie, and Tuo Wang. A Learning-based Approach for Automatic Construction of Domain Glossary from Source Code and Documentation. In Proceedings of the 27th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2019), Tallinn, Estonia, August 26-30, 2019, pages 97-108. ACM, 2019
- [C4]-2019 **Mingwei Liu**, Xin Peng, Andrian Marcus, Zhenchang Xing, Wenkai Xie, Shuangshuang Xing, and Yang Liu. Generating Query-specific Class API Summaries. In Proceedings of the 27th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2019), Tallinn, Estonia, August 26-30, 2019, pages 120–130. ACM, 2019.
- [C3]-2018 Hongwei Li, Sirui Li, Jiamou Sun, Zhenchang Xing, Xin Peng, **Mingwei Liu**, and Xuejiao Zhao. Improving API Caveats Accessibility by Mining API Caveats Knowledge Graph. In Proceedings of the 34th IEEE International Conference on Software Maintenance and Evolution (ICSME 2018), Madrid, Spain, September 23-29, 2018, pages 183-193. IEEE Computer Society, 2018. **IEEE TCSE 杰出论文奖**.
- [C2]-2018 **Mingwei Liu**, Xin Peng, Qingtao Jiang, Andrian Marcus, Junwen Yang, and Wenyun Zhao. Searching StackOverflow Questions with Multi-faceted Categorization. In Proceedings of the 10th Asia-Pacific Symposium on Internetware, Internetware 2018, Beijing, China, September 16-16, 2018, pages 10:1-10:10. ACM, 2018.
- [C1]-2018 Xin Peng, Yifan Zhao, **Mingwei Liu**, Fengyi Zhang, Yang Liu, Xin Wang, and Zhenchang Xing. Automatic Generation of API Documentations for Open-source Projects. In IEEE 3rd International Workshop on Dynamic Software Documentation, DySDoc@ICSME 2018, Madrid, Spain, September 25, 2018, pages 7-8. IEEE, 2018.
- 投稿中 Xueying Du, **Mingwei Liu**, Yiling Lou, Juntao Li, Hanlin Wang and Xin Peng. Investigating ChatGPT's Capability in Diagnosing Crash Bugs. 已提交至 ICSE 2023.
- 投稿中 Zhiqiang Yuan, Yiling Lou, **Mingwei Liu**, Shiji Ding, Kaixin Wang, Yixuan Chen and Xin Peng. No More Manual Tests? Evaluating and Improving ChatGPT for Unit Test Generation. 已提交至 ICSE 2023.
- 投稿中 Xueying Du, **Mingwei Liu***, Kaixin Wang, Hanlin Wang, Junwei Liu, Yixuan Chen, Jiayi Feng, Chaofeng Sha, Xin Peng, Yiling Lou. ClassEval: A Manually-Crafted Benchmark for Evaluating LLMs on Class-level Code Generation. 已提交至 ICSE 2023.
- 投稿中 Zhiqiang Yuan, Junwei Liu, Qiancheng Zi, **Mingwei Liu**, Xin Peng, Yiling Lou. Evaluating Instruction-Tuned Large Language Models on Code Comprehension and Generation. 已提交至 ICSE 2023.

专业服务（期刊）

审稿人 IEEE Transaction on Software Engineering (TSE)

审稿人 IEEE Transaction on Software Engineering and Methodology (TOSEM)

审稿人 Empirical Software Engineering (ESEM)
审稿人 Journal of Software: Evolution and Process (JSEP)
审稿人 Journal of Systems and Software (JSS)
审稿人 Information and Software Technology (IST)
审稿人 Automated Software Engineering (ASE)

专业服务（会议）

程序委员 31st IEEE International Conference on Software Analysis, Evolution and Reengineering, Tools Demo Track (SANER 2024 Tools Demo)
共同审稿人 45th ACM/IEEE International Conference on Software Engineering (ICSE 2022)
共同审稿人 30th IEEE/ACM International Conference on Program Comprehension (ICPC 2022)
共同审稿人 30th International Symposium on the Foundations of Software Engineering (FSE 2022)
共同审稿人 44th ACM/IEEE International Conference on Software Engineering (ICSE 2021)
共同审稿人 32nd IEEE International Symposium on Software Reliability Engineering (ISSRE 2021)
共同审稿人 29th International Symposium on the Foundations of Software Engineering (FSE 2021)
共同审稿人 27th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2020)
共同审稿人 28th IEEE/ACM International Conference on Program Comprehension (ICPC 2020)
共同审稿人 28th International Symposium on the Foundations of Software Engineering (FSE 2020)
志愿者 1st International Workshop on Knowledge Graph for Software Engineering (KG4SE 2020, co-located with ICSE 2020)
共同审稿人 33rd IEEE/ACM International Conference on Automated Software Engineering (ASE 2018)
共同审稿人 41st ACM/IEEE International Conference on Software Engineering (ICSE 2018)
共同审稿人 34th IEEE International Conference on Software Maintenance and Evolution (ICSME 2018)

教学经历

2019 春 助教，高级软件工程，研究生，复旦大学，中国
2017 夏 助教，软件设计，本科生，复旦大学，中国
2017 春 助教，软件工程，本科生，复旦大学，中国