



2024 ACM SIGSOFT Special Event on AI Foundation Models and Software Engineering

Welcome from the Chairs



David Lo & Xin Xia
General Co-Chairs

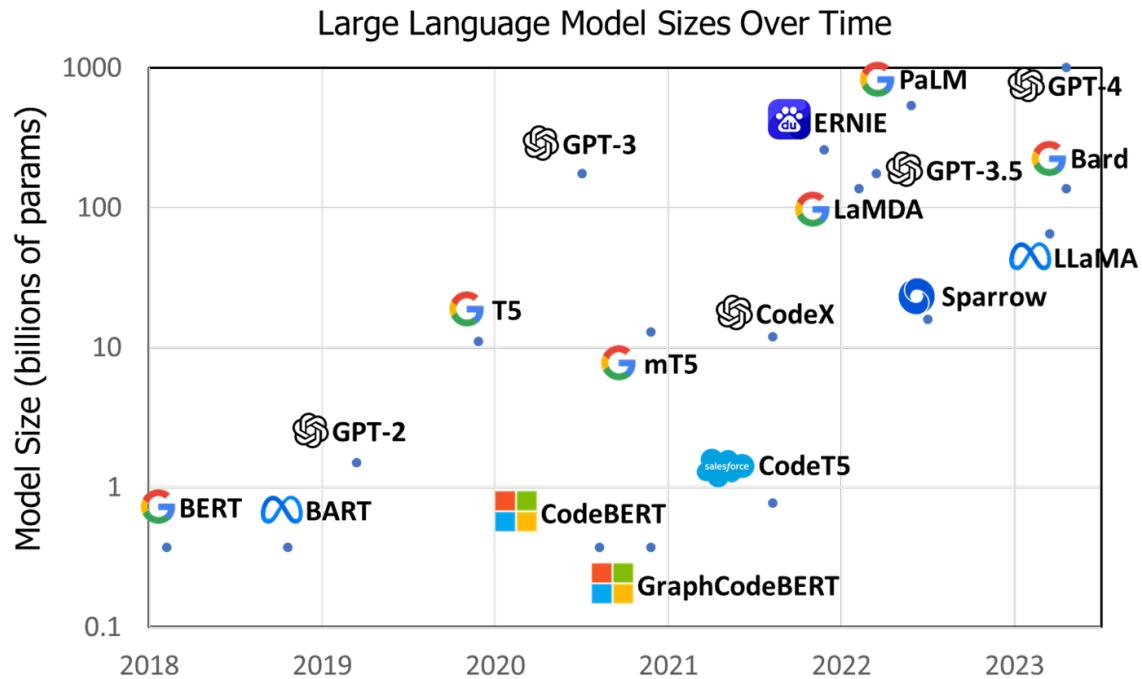


Max Di Penta & Xing Hu
Program Co-Chairs



Welcome from the General Chairs

Foundation models are advancing rapidly



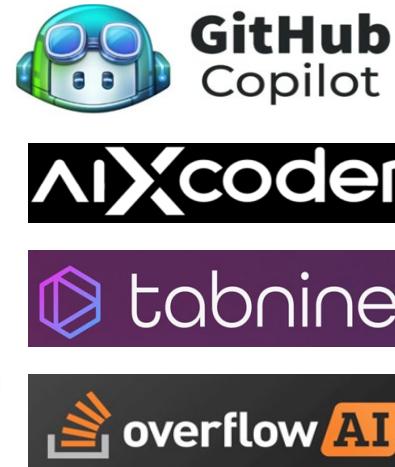
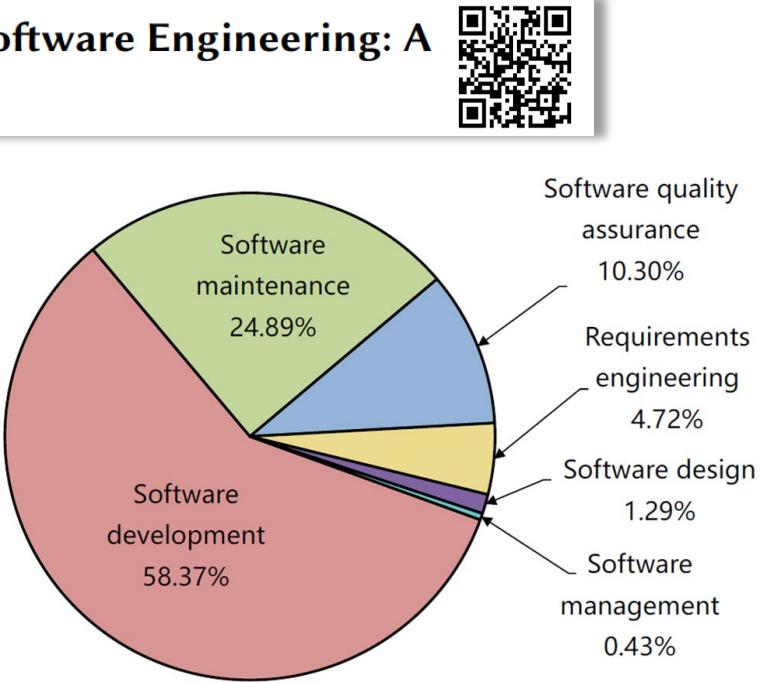
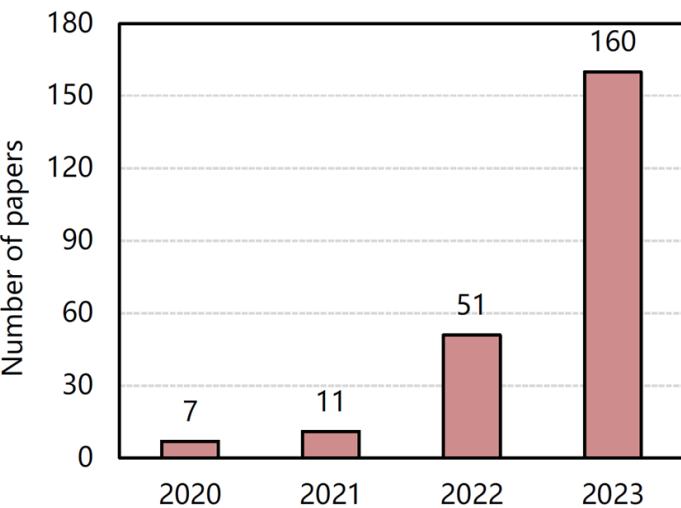
RT-2: Vision-Language-Action Models

Transfer Web Knowledge to
Robotic Control

Welcome from the General Chairs

They have impacted software engineering research and practice

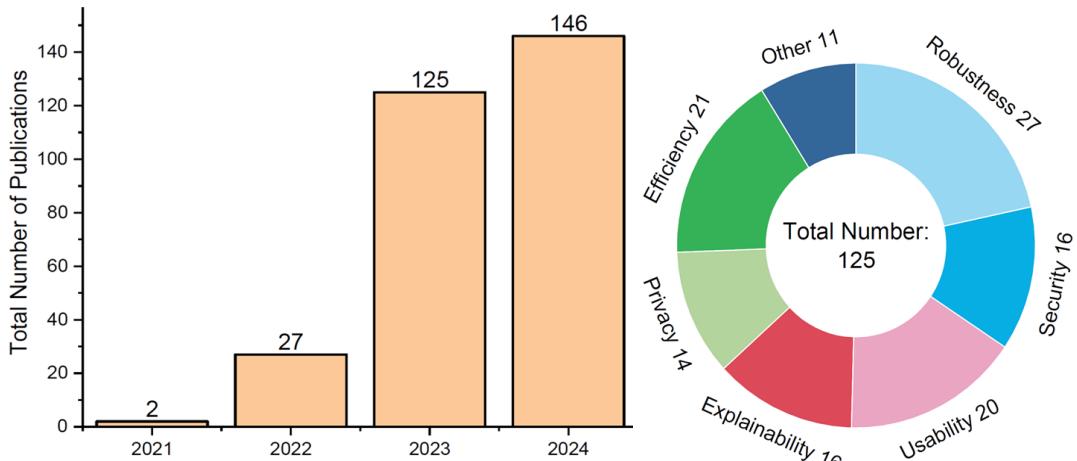
Large Language Models for Software Engineering: A Systematic Literature Review



Welcome from the General Chairs

However FM4SE is not without issues and limitations

Robustness, Security, Privacy, Explainability, Efficiency, and Usability of Large Language Models for Code



Friend or foe: Can computer coders trust ChatGPT?

31 March 2023

By Sean McManus, Technology Reporter



Using ChatGPT to Analyze Your Code? Not So Fast



MARK SHERMAN
FEBRUARY 12, 2024



GitHub Copilot copyright case narrowed but not neutered



Welcome from the General Chairs

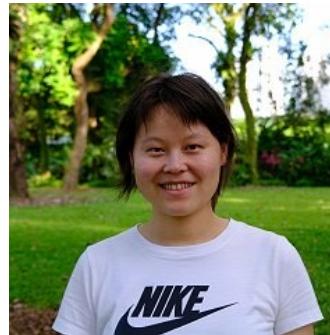
There are many open problems requiring a dedicated community

ASE 2023

SATE - Software Engineering at the Era of LLMs



Organizing Committee - Thank You !!



Sofia Reis and Bowen Xu
*Local Arrangement
Co-Chairs*

Antonio Mastropaolo
and Ting Zhang
Social Media Co-Chairs

Yanming
Yang
Web Chair

International, Diverse Registrants – Thank You !!

- ~100 registrants
- **23 countries from ALL continents except Antarctica**
 - Top 3: China, Germany, and USA
- Industry (~25%, **10+ companies**), academia (universities and publicly-funded research institutes) & government
 - Including: Microsoft, Google Brain, JetBrains, Volvo, VW, Hitachi, etc.





Social Media

- Please help us advertise cool keynotes, panel, and talks through social media, e.g., Twitter or LinkedIn
 - The authors and speakers will appreciate it
- Please mention FORGE social media accounts or use hashtag #FORGE24 so that we can also retweet

Twitter / X
@ConfForge



FORGE'24

FIRST SPECIAL EVENT ON
AI FOUNDATION MODELS AND
SOFTWARE ENGINEERING

April 14, Lisbon, Portugal



LinkedIn
confforge



Photo Session – Right Before Lunch





FORGE 2024

Program

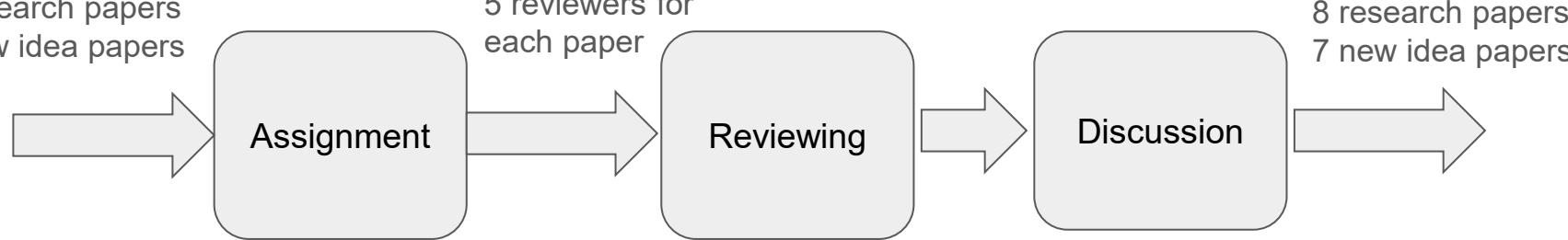
Program committee

Abir Bouraffa, Aitor Arrieta, Alexander Pretschner, Andrea Di Sorbo, Andrea Stocco, Antonio Mastropaoletti, Arghavan Moradi Dakhel, Bin Lin, Chengpeng Wang, Chenxi Zhang, Claudio Di Sipio, Eman Abdullah AlOmar, Fabio Palomba, Facundo Molina, Feifei Niu, Filomena Ferrucci, Fiorella Zampetti, Foutse Khomh, Fuxiang Chen, Giammaria Giordano, Gilberto Recupito, Gunel Jahangirova, Huaming Chen, Istvan David, Jiakun Liu, Jialun Cao, Keheliya Gallaba, Kevin Moran, Maleknaz Nayebi, Martin Weyssow, Matteo Biagiola, Matteo Ciniselli, Minxue Pan, Mohamed Wiem Mkaouer, Mohammed Shehab, Nargiz Humbatova, Nicole Novielli, Noor Nashid, Oscar Chaparro, Phuong T. Nguyen, Qiang Hu, Rahul Yedida, Rangeet Pan, Ratnadira Widyasari, Shamsa Abid, Shangwen Wang, Shaukat Ali, Tao Zhang, Thong (James) Hoang, Ting Zhang, Vincenzo Riccio, Kailong Wang, Wang Shaohua, Xiao Liu, Xiaodong Gu, Xiaoyu Liu, Xin Jin, Xin Zhou, Yan Wang, Yang Feng, Yanjie Jiang, Yepang Liu, Yi Liu, Yifan Wu, Yintong Huo, Yu Hao, Yuan Tian, Yuekang Li, Yun Peng, Zhenhao Li, Zhenpeng Chen, Zhongxin Liu, Zhou Yang

Reviewing Process

Submissions:

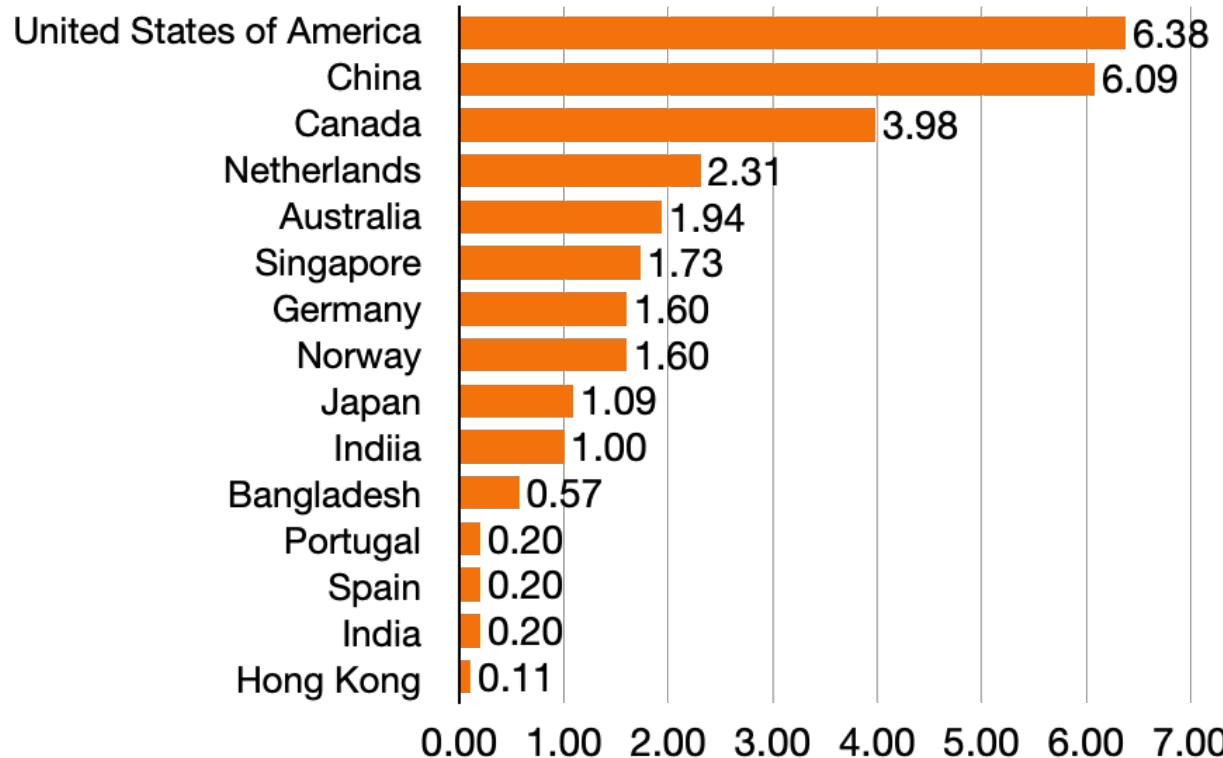
16 research papers
16 new idea papers



Accepted:

8 research papers
7 new idea papers

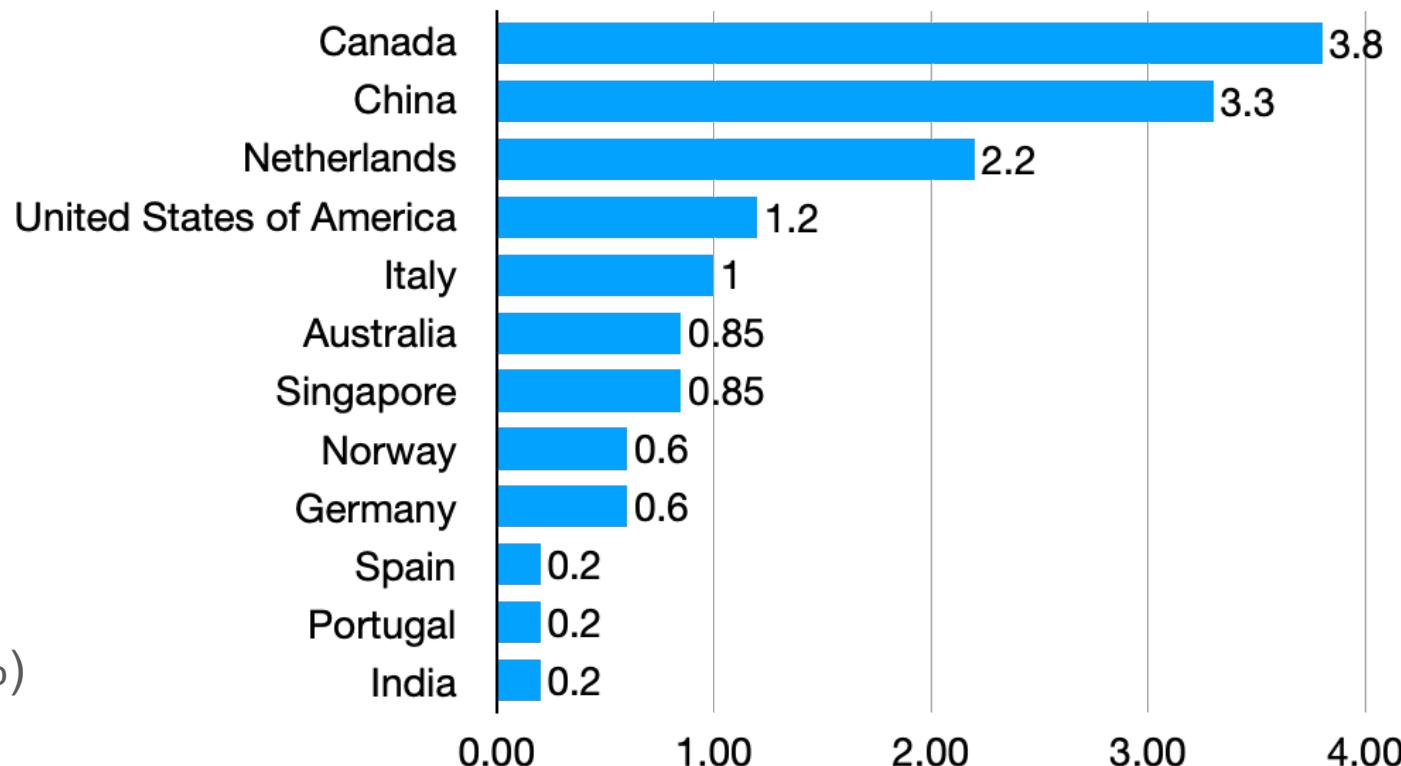
Submitted by Country



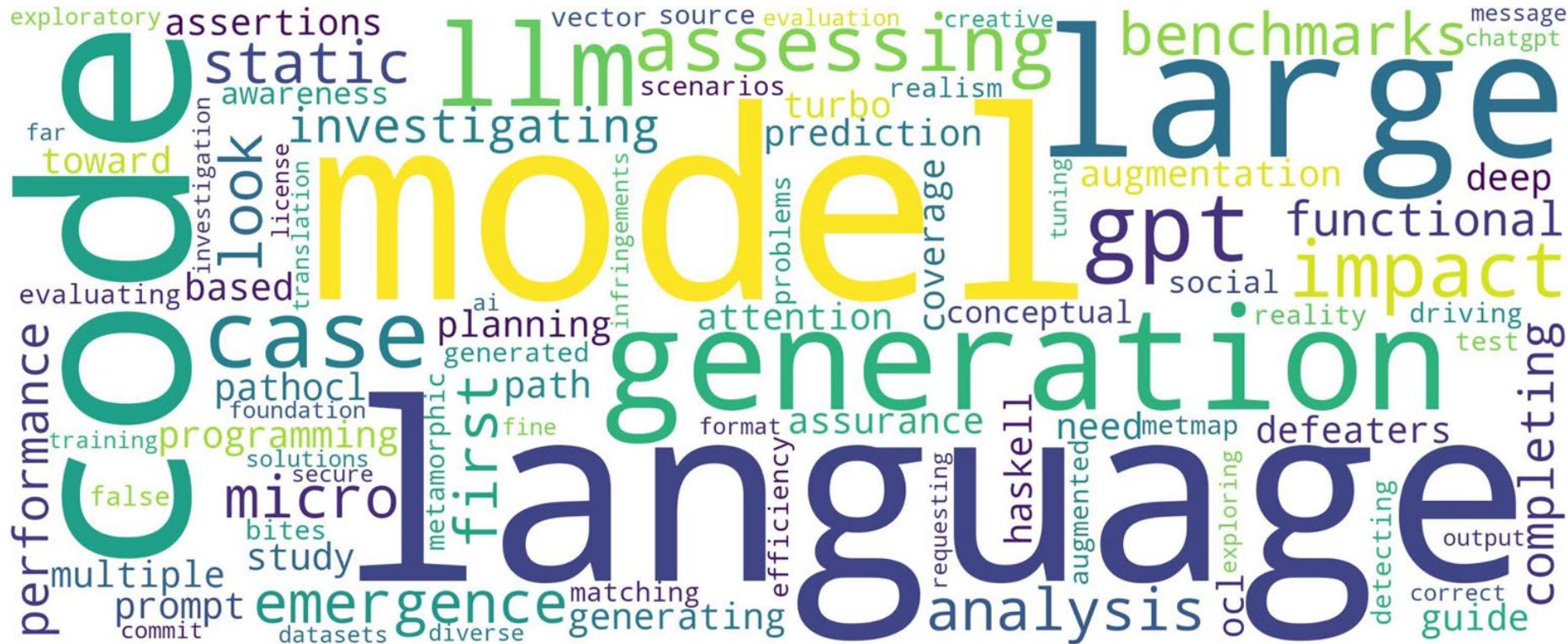
16 full

16 new idea

Accepted by Country



Papers About...



A large word cloud centered on the word "language". The words are in various colors (green, yellow, blue, purple) and sizes, representing different topics related to language processing. Some prominent words include "language", "model", "generation", "large", "gpt", "case", "first", "micro", "emergence", "assertions", "static", "look", "toward", "based", "path", "foundation", "programming", "solutions", "secure", "study", "multiple", "prompt", "commit", "exploratory", "investigation", "license", "translation", "infringements", "ai", "planning", "generated", "path", "metamorphic", "bites", "study", "datasets", "diverse", "matching", "generating", "vector", "source", "scenarios", "evaluation", "turbo", "realism", "prediction", "problems", "attention", "conceptual", "coverage", "tuning", "augmentation", "deep", "functional", "social", "impact", "reality", "driving", "test", "format", "assurance", "efficiency", "requesting", "defeaters", "need", "metmap", "exploring", "augmented", "haskell", "analys

FORGE explained by ChatGPT



“The conference focuses on the intersection of artificial intelligence, particularly large language models (LLMs), and software engineering. The topics cover a range of issues and applications related to LLMs in software development, including code completion, code generation, testing, evaluation, security, and ethical considerations. The conference appears to be a platform for researchers to present their findings and discuss advancements in leveraging LLMs for various tasks in software engineering, such as code generation, testing, and analysis.”

The program

Two Keynotes:

- Lionel Briand
- Denys Poshyvanyk

One Panel:

- Is There Space for Software Engineering Researchers to Contribute to AI4SE in the Era of Foundation Models?

Three Technical Sessions featuring:

- 7 min (with clarification questions) presentations for new idea papers
- 14 min (with clarification questions) presentations for research papers
- Discussion at the end of the session



EMSE Special Issue Invitations

- M. Macedo, Y. Tian, F. Cogo, B. Adams. **Exploring the Impact of the Output Format on the Evaluation of Large Language Models for Code Translation**
- G. Wang, Y. Li, Y. Liu, G. Deng, T. Li, G. Xu, Y. Liu, H. Wang, K. Wang. **MeTMaP: Metamorphic Testing for Detecting False Vector Matching Problems in LLM Augmented Generation**
- T. van Dam, F. van der Heijden, P. de Bekker, B. Nieuwschepen, M. Otten, M. Izadi. **Investigating the Performance of Language Models for Completing Code in Functional Programming Languages: a Haskell Case Study**
- H. Wang, T. Xu, B. Wang. **Deep Multiple Assertions Generation**
- A. Venkatesh, S. Sabu, A. Mir, S. Reis, E. Bodden. **The Emergence of Large Language Models in Static Analysis: A First Look through Micro-Benchmarks**
- J. Li, A. Sangalay, C. Cheng, Y. Tian, J. Yang. **Fine Tuning Large Language Model for Secure Code Generation**
- S. Blyth, C. Treude, M. Wagner. **Creative and Correct: Requesting Diverse Code Solutions from AI Foundation Models**
- Y. Wu, Y. Li, S. Yu. **Commit Message Generation via ChatGPT: How Far Are We?**

Award Session

Distinguished Reviewer Awards



These people did an awesome reviewing work!

- Aitor Arrieta
- Foutse Khomh
- Kailong Wang
- Martin Weyssow
- Yi Liu
- Yuekang Li

Best Paper Award



Best Paper Award

FORGE 2024

First Special Event on AI Foundation Models
and Software Engineering
April 14, 2024 – Lisbon, Portugal



Presented to

Marcos Macedo, Yuan Tian, Filipe Cogo, and Bram Adams

for the paper

**“Exploring the Impact of the Output Format on the Evaluation
of Large Language Models for Code Translation”**