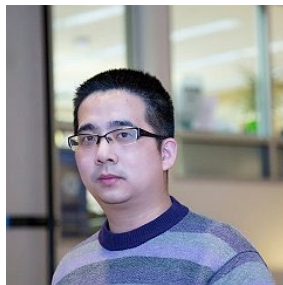




## 2024 ACM SIGSOFT Special Event on AI Foundation Models and Software Engineering

### Welcome from the Chairs



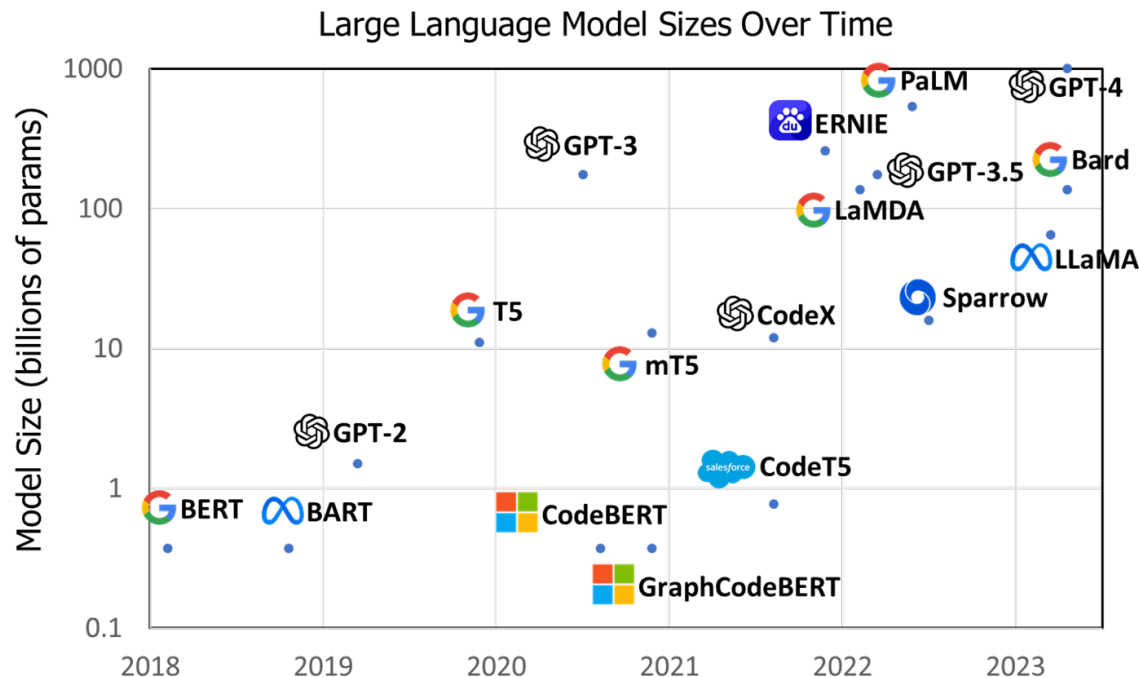
David Lo & Xin Xia  
*General Co-Chairs*



Max Di Penta & Xing Hu  
*Program Co-Chairs*

# Welcome from the General Chairs

Foundation models are advancing rapidly



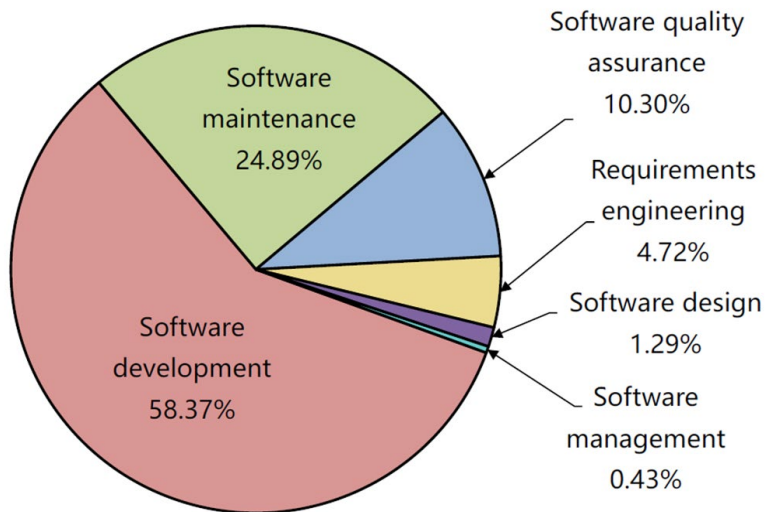
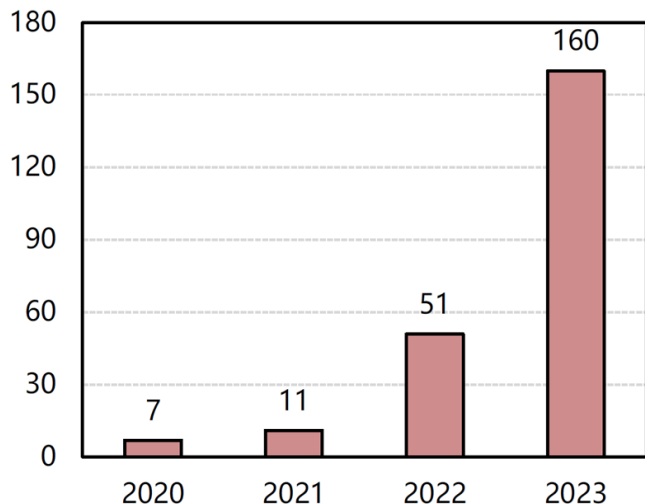
## RT-2: Vision-Language-Action Models

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



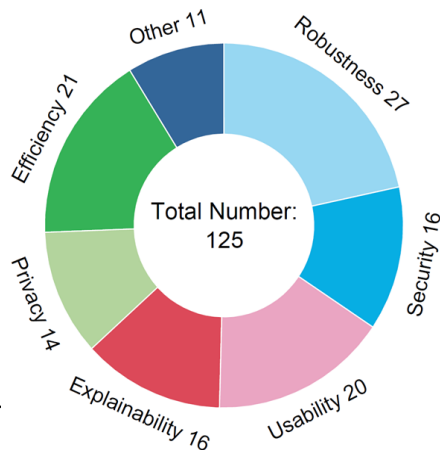
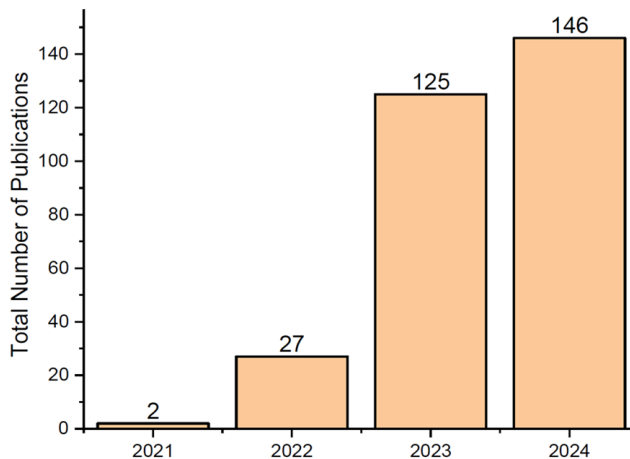
**GitHub**  
Copilot



# 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

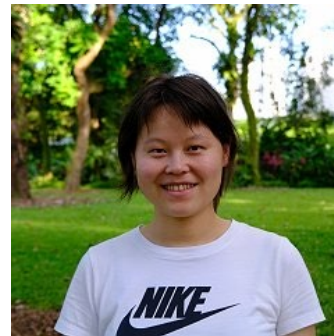
SATE - Software Engineering at the Era of LLMs



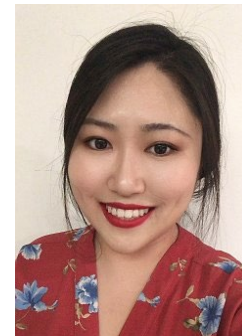
# Organizing Committee - Thank You !!



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 Mastropaolo, 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:

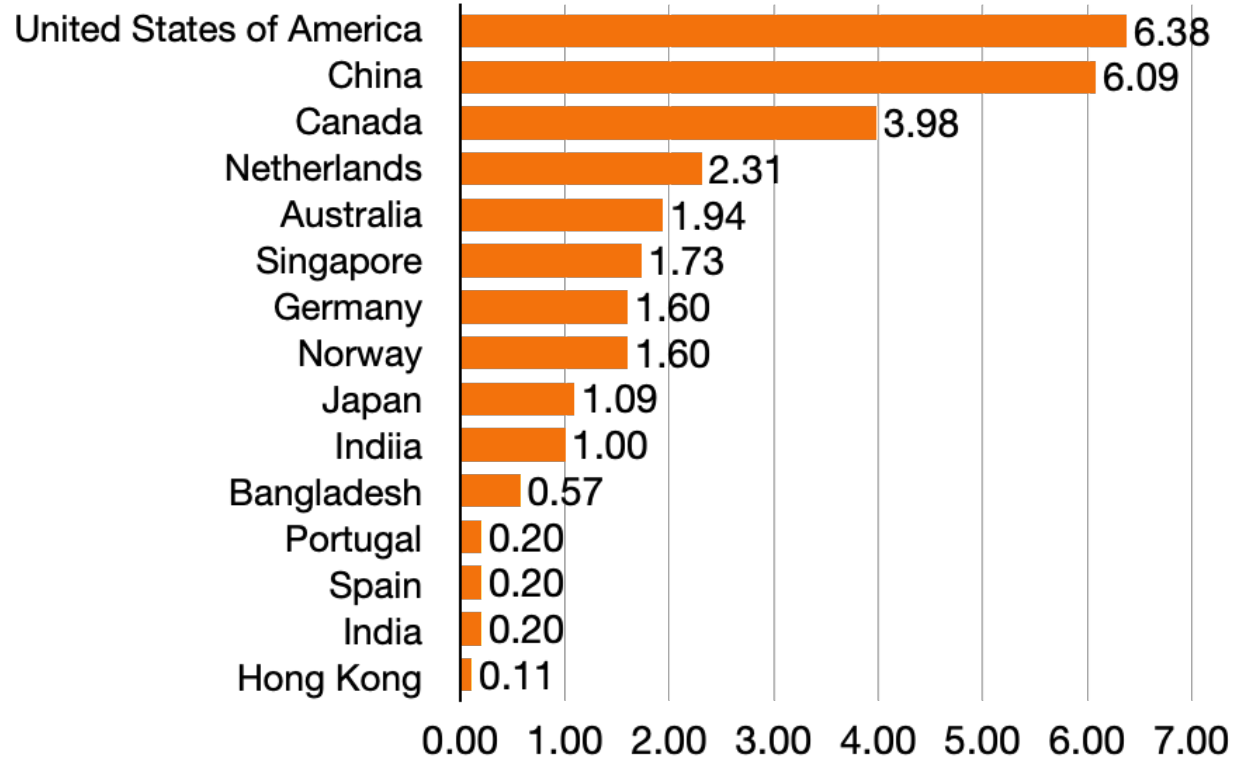
16 research papers  
16 new idea papers



## Accepted:

8 research papers  
7 new idea papers

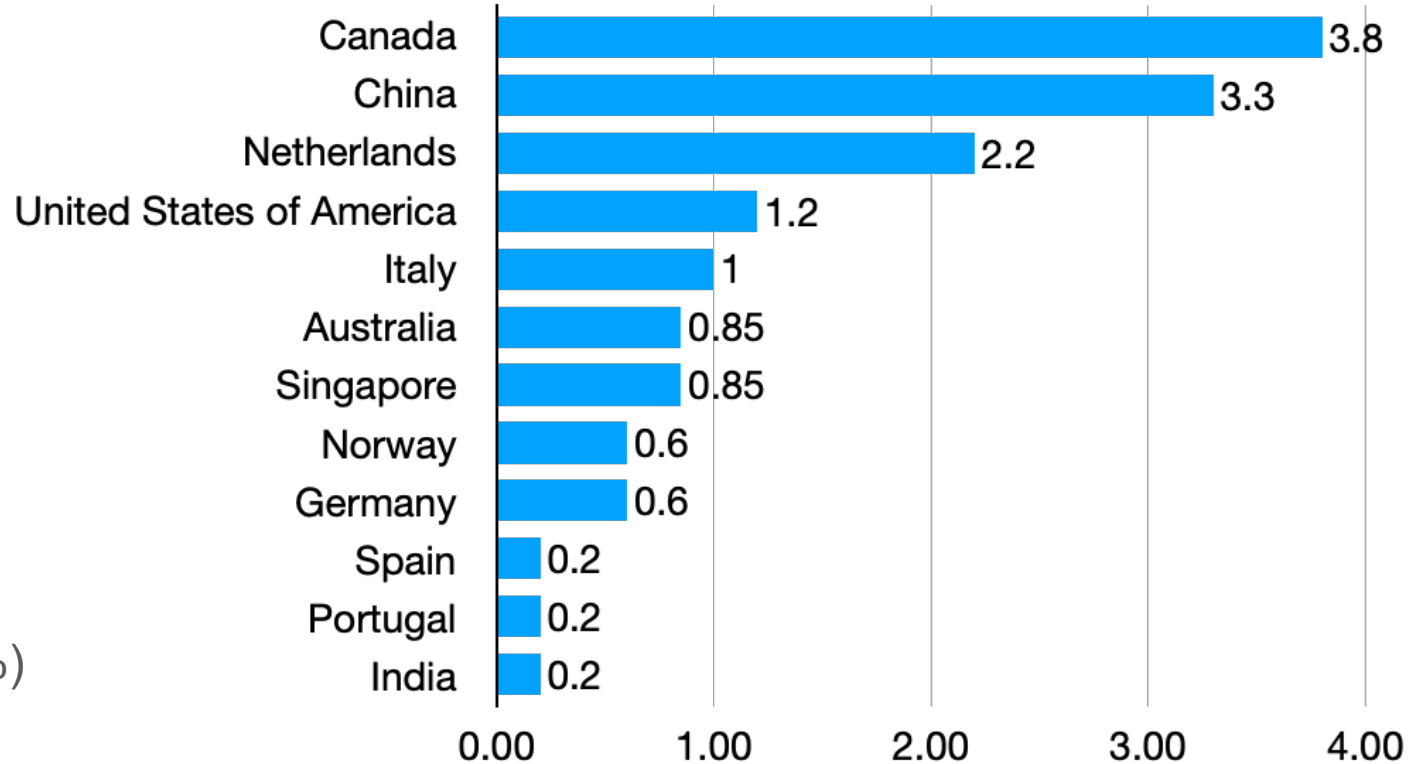
# Submitted by Country



16 full

16 new idea

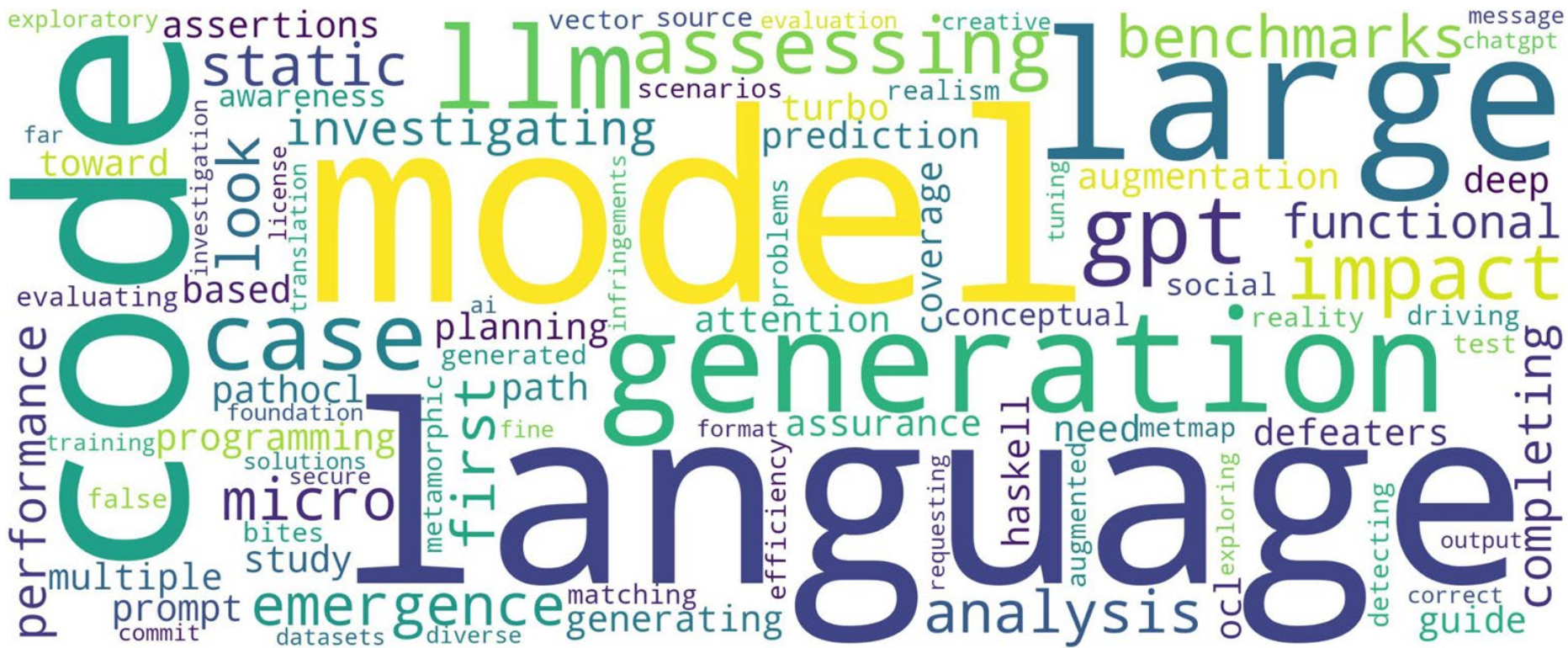
# Accepted by Country



8 full (50%)

7 new idea (44%)





# 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:

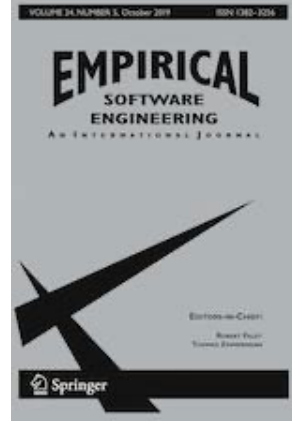
- Is There Space for Software Engineering Researchers to Contribute to AI4SE in the Era of Foundation Models?

## 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”**