# Report on the 3rd International Workshop on Large-Scale Graph Data Analytics (LSGDA 2024)

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## ABSTRACT

This report summarizes the program and outcomes of the 3rd International Workshop on Large-Scale Graph Data Analytics (LSGDA 2024). The workshop was held in conjunction with the VLDB 2024 conference in Guangzhou, China, on August 26, 2024. The aim of the workshop was to provide a forum for researchers from academia and industry to exchange ideas, techniques, and application scenarios in large-scale graph data analytics, as well as to discuss open challenges and identify new research directions in the area. The program featured four keynote talks, eight research paper presentations, and an industry demo session, fostering rich discussions and collaborations among participants.

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## 1 FOREWORD

We are delighted to present the program and outcomes of the 3rd International Workshop on Large-Scale Graph Data Analytics (LSGDA), held in conjunction with the International Conference on Very Large Databases (VLDB) in Guangzhou, China on August 26, 2024.

Over the past few years, LSGDA has established itself as a key event for the exchange of innovative ideas and research findings in the area of large-scale graph data analytics. This year's workshop builds on the success of previous editions, held in conjunction with ICDE 2019 in Macau and VLDB 2020 in Tokyo. The growing interest and participation in LSGDA underscore the importance and relevance of graph data analytics in various application domains such as social networks, communication networks, biological networks, and transportation networks. These domains naturally generate large-scale graph data, necessitating the development of novel and scalable analytics techniques.

The workshop aims to bring together people from around the world with different backgrounds to exchange frontier research ideas and results in large-scale graph data analytics. It also aims to integrate techniques from various areas into solving problems in graph data analytics by focusing on research topics such as machine learning techniques for graphs and AI techniques for graphs. The proposed workshop aligns well with the interests of VLDB 2024. It is closely related to several research tracks in VLDB 2024, including Graph Data Management, Social Networks, Recommendation Systems, Data Mining and Analytics, Provenance and Workflows, Spatial, Temporal, and Multimedia Databases, Scientific and Medical Data Management, and Profile-based or Context-Aware Data Management. The workshop is also expected to spark discussions on novel technique paradigms and application scenarios for graph data analytics.

We received 18 submissions this year, and through a rigorous review process by three members of the program committee for each paper, we have selected 8 papers to be presented in the workshop, including 1 vision paper and 7 research papers. The papers feature a diverse array of topics, including graph data modeling, graph database query processing, mining techniques, parallel processing, and machine learning for graphs. We believe that the research presented here will not only advance the field of large-scale graph data analytics but also inspire new ideas and future research directions. The program committee for LSGDA2024 includes senior researchers and rising stars of the data management community from both academia and industry. We are grateful to the committee members for their thorough evaluation of the submissions within the short review time.

We are honored to have Prof. M. Tamer Özsu (University of Waterloo), Prof. Xuemin Lin (Shanghai Jiao Tong University), Prof. Jian Pei (Duke University), and Dr. Wenyuan Yu (Alibaba) deliver keynote talks at the workshop.

We express our gratitude to the VLDB 2024 organizers for their support which makes LSGDA possible. We also thank all the authors, reviewers, and participants for their contributions and commitment to making this workshop a success. We are deeply appreciative of the financial support we have received from our co-organizing partner **Alibaba Cloud**, the diamond sponsor **Venus Intelligence Technology**, and the gold sponsor **Euler AI**.


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## 2 ORGANIZATION

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- Yuren Mao, Zhejiang University

## 3 KEYNOTES

- "Streaming Graph Processing and Analytics"
  *Prof. M. Tamer Özsu, University of Waterloo*
- "Progress in Graph Computation"
  *Prof. Xuemin Lin, Shanghai Jiao Tong University*
- "Towards Trustworthy Graph Analytics"
  *Prof. Jian Pei, Duke University*
- "GraphScope's Journey with Graph Computing: Progress and Lessons"
  *Dr. Wenyuan Yu, Alibaba*

## 4 ACCEPTED PAPERS

- "XCrowd: Real-Time Dynamic Crowd Movement Simulation on Graph Networks"
  *Jan Appel, Andreas Weiler*
- "MRG-SER: Self-supervised Spatial Entity Resolution Based on Multi-Relational Graph"
  *Hanchen Qiu, Haojia Zhu, Zhicheng Li, Jiahui Jin*
- "Enhancing Neo4j Query Efficiency with Seamless Integration of the GOpt Optimization Framework"
  *Bingqing Lyu, XiaoLi Zhou, Longbin Lai, Yufan Yang, Yunkai Lou, Yongfei Liu*
- "Vision Paper: Designing Graph Neural Networks in Compliance with the European Artificial Intelligence Act"
  *Barbara A Hoffmann, Jana Vatter, Ruben Mayer*
- "Size Does (Not) Matter? Sparsification and Graph Neural Network Sampling for Large-scale Graphs"
  *Jana Vatter, Maurice L Rochau, Ruben Mayer, Hans-Arno Jacobsen*
- "HyperFedNet: Communication-Efficient Personalized Federated Learning Via Hypernetwork"
  *Xingyun Chen, Yan Huang, Zhenzhen Xie, Junjie Pang*
- "Parallel Higher-order Truss Decomposition"
  *Chen Chen, Jingya Qian, Hui Luo, Yongye Li, Xiaoyang Wang*
- "Text to Graph Query Using Filter Condition Attributes"
  *Yang Liu, Xin Wang, Hui Wang, Dawei Xu, Yongzhe Jia*