Shaoyuan Huang

Ph.D. 3nd year，TJU Edge Big Bang Group，College of Intelligence and Computing，Tianjin University，Tianjin

dblp Google Scholar

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Research Field

- Distributed System Workload and Performance Modeling
- AI Inference Serving Systems
- FL-based Joint LLM Inference and Fine-tuning

Education Experience

- Visting Ph.D.(2024-2025) Department of Engineering, King's College London
  (Supervisor: Prof. Yansha Deng)
- Ph.D. (2022-Now), M.S.(2020-2022), B.S. (2016-2020)
  All from College of Intelligence and Computing, Tianjin University, Tianjin, China
  (Supervisor: Prof. Xiaofei Wang, Peiyang Young Scholar, National Thousand Youth Talents Plan)

Internship

- 2021.09-2022.01 Algorithm Development Intern, in PPIO Cloud Computing (Shanghai) Co.
  - Responsible for the development of cloud server workload analysis and prediction algorithms, server utilization impact feature mining.
- 2022.03-2022.06 Algorithm Development Intern, in Paiou Cloud Computing (Shanghai) Co.
  - Responsible for system integration of prediction algorithms and task deployment recommender system.

Publication

- **Journal**

1. **Shaoyuan Huang**, Zheng Wang, Heng Zhang, Xiaofei Wang, Cheng Zhang, Wenyu Wang"DynEformer: A Unified Framework for Robust Workload Prediction Under Dynamic Environment," Under Review.
2. **Shaoyuan Huang**, Heng Zhang, Xiaofei Wang*, Min Chen, Jianxin Li, Victor C.M. Leung "Fine-grained Spatio-Temporal Distribution Prediction of Mobile Content Delivery in 5G Ultra-Dense Networks," in ***IEEE Transactions on Mobile Computing (TMC)***, 2022. (JCR-1, IF:7.9)
3. **Shaoyuan Huang**, Yuxi Zhang, Guozheng Peng, Juan Zhao, Keping Zhu, Heng Zhang, Xiaofei Wang*, "MF-GCN-LSTM: A Cloud-Edge Distributed Framework for Key Positions Prediction in Grid Projects," in ***Journal of Cloud Computing***, 2022. (JCR-2, IF:4.0)
4. Heng Zhang, **Shaoyuan Huang**, Xin Wang, Jianxin Li, Xiaofei Wang*, Victor C. M. Leung, "A Measurement-driven Analysis and Prediction of Content Propagation in the Device-to-Device Social Networks," in ***IEEE Transactions on Knowledge and Data Engineering (TKDE)***, 2022. (JCR-1, IF:8.9)
5. Heng Zhang, **Shaoyuan Huang**, Mengwei Xu, Deke Guo, Xiaofei Wang, Xin Wang, Victor CM Leung, Wenyu Wang, "Large-scale Measurements and Optimizations on Latency in Edge Clouds," in IEEE Transactions on Cloud Computing 2024. (JCR-2, IF:5.4)
6. Hui Sun, Yiru Chen, Kewei Sha, **Shaoyuan Huang**, Xiaofei Wang, Weisong Shi, "A Proactive On-Demand Content Placement Strategy in Edge Intelligent

Gateways," in ***IEEE Transactions on Parallel and Distributed Systems***, 2023. (JCR-1, IF:5.3)

- **Conference**
  1. **Shaoyuan Huang,** Tiancheng Zhang, Zhongtian Zhang, Xiaofei Wang, Lanjun Wang, Xin Wang, "MetaEformer: Unveiling and Leveraging Meta-Patterns for Complex and Dynamic Systems Load Forecasting", in ***31TH ACM SIGKDD Conference on Knowledge Discovery and Data Mining (ACM SIGKDD)***, 2025, (CCF-A).
  2. **Shaoyuan Huang**, Zheng Wang, Zhongtian Zhang and Heng Zhang, Xiaofei Wang, Wenyu Wang, "Seer: Proactive Revenue-Aware Scheduling for Live Streaming Services in Crowdsourced Cloud-Edge Platforms,", in ***IEEE International Conference on Computer Communications (IEEE INFOCM)***, 2024, (CCF-A).
  3. **Shaoyuan Huang**, Zheng Wang, Heng Zhang, Xiaofei Wang, Cheng Zhang and Wenyu Wang, "One for All: Unified Workload Prediction for Dynamic Multi-tenant Edge Cloud Platforms," in ***29TH ACM SIGKDD Conference on Knowledge Discovery and Data Mining (ACM SIGKDD)***, 2023, (CCF-A).
  4. **Shaoyuan Huang**, Heng Zhang, Xiaofei Wang, Min Chen, Jianxin Li, Victor C.M. Leung, "Spatial-Temporal-Social Multi-Feature-based Fine Grained Hot Spots Prediction for Content Delivery Services in 5G Era," in ***30th ACM International Conference on Information and Knowledge Management (ACM CIKM)***, 2021, (CCF-B).
  5. Yuting Li, **Shaoyuan Huang**, Tengwen Zhang Cheng Zhang Xiaofei Wang and Victor C.M. Leung, "Sentinel: Scheduling Live Streams with Proactive Anomaly Detection in Crowdsourced Cloud-Edge Platforms", in ***IEEE International Conference on Computer Communications (IEEE INFOCM)***, 2025, (CCF-A).
  6. Heng Zhang, **Shaoyuan Huang**, Mengwei Xu, Deke Guo, Xiaofei Wang, Victor C. M. Leung and Wenyu Wang, "How Far Have Edge Clouds Gone? A Spatial-Temporal Analysis of Edge Network Latency In the Wild," in ***IEEE/ACM International Symposium on Quality of Service (IWQoS)***, 2023, (CCF-B).
  7. Heng Zhang, Zixuan Cui, **Shaoyuan Huang**, Deke Guo, Xiaofei Wang, Wenyu Wang, "QM-RGNN: An Efficient Online QoS Measurement Framework with Sparse Matrix Imputation for Distributed Edge Clouds", in ***IEEE International Conference on Computer Communications (IEEE INFOCM)***, 2024, (CCF-A).
  8. Tiancheng Zhang, **Shaoyuan Huang**, Cheng Zhang, Xiaofei Wang, Wenyu Wang, "EasyTS: The Express Lane to Long Time Series Forecasting", ***in AAAI 2024 Demonstration Program***, 2024, (CCF-A).

Talk

- 43th IEEE International Conference on Computer Communications (IEEE INFOCOM) 2024, presentation and talk.
- 29th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (ACM SIGKDD), 2023, Long Beach, CA, USA, online participation and presentation.

- IEEE Global Communications Conference (Globecom), 2023, Kuala Lumpur, Malaysia, participation and presentation.
- 30th ACM International Conference on Information and Knowledge Management (ACM CIKM), 2021, online participation and presentation.

Leadership

- Tianjin University, department president of the Youth Culture Club, 2016-2019

Participated in organizing more than 50 lectures with more than 13,000 audience.

Patent

- " ***Multi-feature based neural network for content delivery hotspots prediction***", Chinese Patent, CN112822045B (Patent Authorized)
- " ***Edge cloud server utilization prediction method, prediction device and storage medium based on boosting algorithm***", Chinese Patent, CN114721898A (Patent Pending)

Including those not listed, totaling 12 patents.

Award

- 2025, China Scholarship Council
- 2024, CCF DPCS Distinguished Doctorate
- 2021, 2023, "Suzhou Talent Scholarship", Suzhou Government Talent Group
- 2023, "Merit Student" of Tianjin University
- 2021, "Suzhou Talent Scholarship", Tianjin University
- 2020, "Outstanding Graduate" of Tianjin University
- 2017-2019, "Merit Student" of Tianjin University

Technical Contributions

- **Open source system models and datasets**
  - **KDD25_MetaEformer: MetaEformer v1.0 - Initial Release**
  - **Edge Cloud Server Latency Measurements**
  - **DynEformer: Edge Cloud Server Workload Prediction Framework**
  - **ECW: Edge Cloud Server Workload Dataset**
- **Internship Achievements**
  - Successfully designed the workload and utilization prediction model based on Xgboosting and residual learning, with an accuracy of over 90% across thousands of servers, through several rounds of improvement and A/B testing.
  - Participated in the development of a prototype predictive modeling-based task deployment recommendation system, responsible for algorithm integration, data flow automation, and recommendation algorithms components.