SHI TIANYAO

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RESEARCH INTEREST

My research interests span Data Mining, Cloud Computing, and Computer Systems Optimization. Two of my recent projects aimed to optimize system efficiency and business operations for public cloud platforms via data-driven approaches to achieve better user experience and increase profit. In my PhD study, I plan to further investigate learning-based techniques for computer systems optimization.

EDUCATION

- **Purdue University, PhD in Electrical and Electronics Engineering**   2024/08 –
  Advisor: Professor Yi Ding
- **Shanghai Jiao Tong University, Master's Degree in Electronic and Information Engineering**   2021/09 – 2024/03
  Advisor: Professor Xiaofeng Gao   GPA: 3.69/4.0   Major GPA: 3.9/4.0
  TOEFL: 111 (Reading 30, Listening 29, Speaking 25, Writing 27)   GRE: Verbal 159, Quantitative 169, Writing 3.5
- **Shanghai Jiao Tong University, Bachelor's Degree in Computer Science**   2017/09 – 2021/06
  GPA: 88.73/100 (3.79/4.30)   Major GPA: 89.65/100 (3.88/4.30)

PUBLICATIONS

1. **Tianyao Shi**, Yingxuan Yang, Yunlong Cheng, Xiaofeng Gao, Zhen Fang, Yongqiang Yang, Alioth: A Machine Learning Based Interference-Aware Performance Monitor for Multi-Tenancy Applications in Public Cloud, the 37th IEEE International Parallel & Distributed Processing Symposium (**IPDPS**), pp. 908-917, 2023.
2. **Tianyao Shi**, Xiuyuan Wei, Zhipeng Bian, Xiaofeng Gao, Yulong Song, Zhenli Sheng, Predicting Enterprise Customers' IT Budgets for Cloud Services, ACM Conference on Knowledge Discovery and Data Mining (**KDD**) 2024, Under Review.
3. Xuehan Sun, **Tianyao Shi**, Xiaofeng Gao, Yanrong Kang, Guihai Chen, FORM: Following the Online Regularized Meta-Leader for Cold-Start Recommendation, International ACM **SIGIR** Conference, pp. 1177-1186, 2021.
4. Xuehan Sun, **Tianyao Shi**, Xiaofeng Gao, Xiang Li, Guihai Chen, GCAN: A Group-Wise Collaborative Adversarial Networks for Item Recommendation. Database Systems for Advanced Applications (**DASFAA**) pp. 330-338, 2021.

RESEARCH EXPERIENCE

- **Enterprise Customers' IT Budgets Prediction for Cloud Services**   2022/08 – 2023/09
  - Propose a new problem to predict enterprise customers' IT budgets for public cloud services via observed consumption records, helping salespersons launch targeted campaigns to acquire high-value customers.
  - Design a holistic two-stage framework, BSA-DaMaM, to first align the gap between the budgets and acutal spendings via dataset debugging techniques, then to address the complex coupling of high feature-missing ratio and heterogeneity in real-world data.
  - Submit a first-author paper to KDD Applied Data Science Track 2024.
- **QoS Prediction in Public Cloud**   2021/01 – 2022/07
  - Propose and open-source Alioth, a framework that combines denoising auto-encoders, gradient boosting trees, and transfer learning to estimate application performance and thus detect co-location interference in public cloud.
  - Build and open-source Alioth-dataset through extensive VM co-location experiments to feed the data-driven models.
  - Publish and present in oral a first-author paper in IPDPS 2023.
- **Collaborative Recommender Systems**   2019/12 – 2021/01
  - Identify and leverage grouping mechanism in collaborative filtering based recommendation.
  - Propose a meta-learning based online recommender to alleviate the online cold-start problem.
  - Contribute to writing and visualization of 2 papers as the second author.

SCHOLARSHIP AND AWARDS

B-Class Excellent Scholarship of SJTU (twice, top 10% comprehensive evaluation score)	2018，2020
Excellent Student of SJTU (winning rate 7%)	2018
Meritorious Winner of Mathematical Contest In Modeling (MCM) (top 9.7% of 26062 teams)	2018
Outstanding Graduate of Shanghai Jiao Tong University	2021
Excellent Graduate Student Scholarship of SJTU (6/196)	2023

ACADEMIC SERVICES

- **External Reviewer of Journals and Conferences**
  - IEEE Transactions on Network Science and Engineering (TNSE, 2021), IEEE Transactions on Network and Service Management (TNSM, 2021), AAAI Conference on Artificial Intelligence (AAAI, 2022), IEEE International Conference on Data Mining (ICDM, 2023)

SKILLS AND HOBBIES

- Programming Tools: C/C++, Python, SQL, Linux Shell
- Hobbies: Swimming, Soccer