RUNLONG YU

(1995-10-12)

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GOOGLE SCHOLAR PROFILE

EDUCATION

Ph.D. | *Major: Computer Science and Technology*   Jun. 2023
University of Science and Technology of China (USTC)   Hefei, China
Advisor: Prof. Enhong Chen, Fellow of IEEE, Distinguished Member of ACM

B.E. | *Major: Computer Science and Technology*   Jun. 2017
University of Science and Technology of China (USTC)   Hefei, China

PROFESSIONAL EXPERIENCES

Postdoctoral Associate   Sep. 2023 – present
Laboratory of Data Mining, Department of Computer Science, University of Pittsburgh   Pittsburgh, USA
Advisor: Prof. Xiaowei Jia

Instructor   Aug. 2024 – present
Department of Computer Science, University of Pittsburgh   Pittsburgh, USA

Research Intern   Jul. 2021 – Jan. 2022
Joint Laboratory of Artificial Intelligence, China Merchants Bank   Shenzhen & Hefei, China

Research Intern   Jul. 2019 – Jan. 2020
Data Application Center, Technology Engineering Group, Tencent   Shenzhen, China

Research Intern   Summer 2016
State Key Laboratory of Computer Architecture, Institute of Computing Technology, CAS   Beijing, China

HONORS AND AWARDS

Gold Medal of Anhui Province "Internet+" College Student Innovation Competition   2021
Foundation: Department of Education of Anhui Province

China Scholarship Council Scholarship   2021
Foundation: China Scholarship Council

Champion of the CCF BDCI Fighting Epidemics Big Data Charity Challenge   2021
Foundation: Beijing Municipal Bureau of Economy and Information Technology & CCF

USTC Special Scholarship   2021
Foundation: USTC

China National Scholarship   2019
Foundation: Ministry of Education of P.R.China

KDD CUP 2019 Regular ML Track PaddlePaddle Special Award   2019
Foundation: ACM

Third Runner-up of China (Hefei) Big Data and Artificial Intelligence Innovation Competition   2018
Foundation: Hefei Data Resources Bureau

Suzhou Industrial Park Scholarship   2018
Foundation: Suzhou Industrial Park

GDC Technology Scholarship   2018
Foundation: GDC Technology company

USTC Postgraduate First-Class Scholarship   2021, 2020, 2019, 2018, 2017
Foundation: USTC

First Prize of Chinese Physics Olympiad   2012
Foundation: Chinese Physical Society

Journal Articles

1. **Runlong Yu**, Yiqun Xie, Xiaowei Jia. Environmental Computing as a Branch of Science, *Communications of the ACM (CACM)*, accepted, to be published, 2025. *Impact Factor: 22.7*

2. **Runlong Yu**, Qi Liu, Yuyang Ye, Mingyue Cheng, Enhong Chen, Jianhui Ma. Collaborative List-and-Pairwise Filtering from Implicit Feedback, *IEEE Transactions on Knowledge and Data Engineering (IEEE TKDE)*, v 34, n 6, pages 2667-2680, 2022. *Impact Factor: 8.9*

3. **Runlong Yu**, Hongke Zhao, Zhong Wang, Yuyang Ye, Peining Zhang, Qi Liu, Enhong Chen. Negatively Correlated Search with Asymmetry for Real-Parameter Optimization Problems, *Journal of Computer Research and Development (J-CRAD)*, v 56, n 8, pages 1746-1757, 2019. *Class A by China Computer Federation*

4. Yuyang Ye, Hengshu Zhu, Tianyi Cui, **Runlong Yu**, Le Zhang, Hui Xiong. University Evaluation through Graduate Employment Prediction: An Influence based Graph Autoencoder Approach, *IEEE Transactions on Knowledge and Data Engineering (IEEE TKDE)*, v 36, n 11, pages 7255-7267, 2024. *Impact Factor: 8.9*

5. Yuyang Ye, Zheng Dong, Hengshu Zhu, Tong Xu, Xin Song, **Runlong Yu**, Hui Xiong. MANE: Organizational Network Embedding with Multiplex Attentive Neural Networks, *IEEE Transactions on Knowledge and Data Engineering (IEEE TKDE)*, v 35, n 4, pages 4047-4061, 2023. *Impact Factor: 8.9*

6. Huijie Liu, Han Wu, Le Zhang, **Runlong Yu**, Ye Liu, Chunli Liu, Minglei Li, Qi Liu, Enhong Chen. A Hierarchical Interactive Multi-channel Graph Neural Network for Technological Knowledge Flow Forecasting, *Knowledge and Information Systems (KAIS)*, v 64, n 7, pages 1723-1757, 2022. *Impact Factor: 2.5*

7. Qixiang Shao, **Runlong Yu**, Hongke Zhao, Chunli Liu, Mengyi Zhang, Hongmei Song, Qi Liu. Toward Intelligent Financial Advisors for Identifying Potential Clients: A Multitask Perspective, *Big Data Mining and Analytics (BDMA)*, v 5, n 1, pages 64-78, 2022. *Impact Factor: 11.8*

Conference Articles

1. **Runlong Yu**, Yiqun Xie, Xiaowei Jia. What We Talk About When We Talk About AI for Science, *SIAM International Conference on Data Mining (SDM)*, accepted, to be published, 2025. *Invited Blue Sky Idea*

2. **Runlong Yu**, Chonghao Qiu, Robert Ladwig, Paul C. Hanson, Yiqun Xie, Xiaowei Jia. Physics-Guided Foundation Model for Scientific Discovery: An Application to Aquatic Science, *AAAI Conference on Artificial Intelligence (AAAI)*, accepted, to be published, 2025. *AISI Track Acceptance Rate: 23.3%*

3. **Runlong Yu**, Chonghao Qiu, Robert Ladwig, Paul C. Hanson, Yiqun Xie, Yanhua Li, Xiaowei Jia. Adaptive Process-Guided Learning: An Application in Predicting Lake DO Concentrations, *IEEE International Conference on Data Mining (ICDM)*, pages 580-589, 2024. *Regular Paper Acceptance Rate: 10.9%*

4. **Runlong Yu**, Robert Ladwig, Xiang Xu, Peijun Zhu, Paul C. Hanson, Yiqun Xie, Xiaowei Jia. Evolution-based Feature Selection for Predicting Dissolved Oxygen Concentrations in Lakes, *International Conference on Parallel Problem Solving from Nature (PPSN)*, pages 398-415, 2024. *Acceptance Rate: 34.4%*

5. **Runlong Yu**, Xiang Xu, Yuyang Ye, Qi Liu, Enhong Chen. Cognitive Evolutionary Search to Select Feature Interactions for Click-Through Rate Prediction, *ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, pages 3151-3161, 2023. *Research Track Acceptance Rate: 22.1%*

6. **Runlong Yu**, Qi Liu, Yuyang Ye, Mingyue Cheng, Enhong Chen, Jianhui Ma. Collaborative List-and-Pairwise Filtering from Implicit Feedback (Extended Abstract), *IEEE International Conference on Data Engineering (ICDE)*, pages 3801-3802, 2023. *Invited Extended Abstract*

7. **Runlong Yu**, Yuyang Ye, Qi Liu, Zihan Wang, Chunfeng Yang, Yucheng Hu, Enhong Chen. XCrossNet: Feature Structure-Oriented Learning for Click-Through Rate Prediction, *Pacific Asia Conference on Knowledge Discovery and Data Mining (PAKDD)*, pages 436-447, 2021. *Acceptance Rate: 20.4%*

8. **Runlong Yu**, Yunzhou Zhang, Yuyang Ye, Le Wu, Chao Wang, Qi Liu, Enhong Chen. Multiple Pairwise Ranking with Implicit Feedback, *ACM Conference on Information and Knowledge Management (**CIKM**)*, pages 1727-1730, 2018. *Short Paper Acceptance Rate: 23.4%*

9. Yiming Sun, **Runlong Yu**, Runxue Bao, Yiqun Xie, Ye Ye, Xiaowei Jia. Domain-Adaptive Continual Meta-Learning for Modeling Dynamical Systems: An Application in Environmental Ecosystems, *SIAM International Conference on Data Mining (**SDM**)*, accepted, to be published, 2025. *Acceptance Rate: 26.7%*

10. Yingda Fan, **Runlong Yu**, Janet Rice Barclay, Alison P. Appling, Yiming Sun, Yiqun Xie, Xiaowei Jia. Multi-Scale Graph Learning for Anti-Sparse Downscaling, *AAAI Conference on Artificial Intelligence (**AAAI**)*, accepted, to be published, 2025. *AISI Track Acceptance Rate: 23.3%*

11. Yuyang Ye, Zhi Zheng, Yishan Shen, Tianshu Wang, Hengruo Zhang, Peijun Zhu, **Runlong Yu**, Kai Zhang, Hui Xiong. Harnessing Multimodal Large Language Models for Multimodal Sequential Recommendation, *AAAI Conference on Artificial Intelligence (**AAAI**)*, accepted, to be published, 2025. *Acceptance Rate: 23.4%*

12. Xiang Xu, Hao Wang, Wei Guo, Luankang Zhang, Wanshan Yang, **Runlong Yu**, Yong Liu, Defu Lian, Enhong Chen. Multi-granularity Interest Retrieval and Refinement Network for Long-Term User Behavior Modeling in CTR Prediction, *ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD**)*, accepted, to be published, 2025. *ADS Track Acceptance Rate: 22.0%*

13. Yin Gu, Kai Zhang, Qi Liu, **Runlong Yu**, Xin Lin, Xinjie Sun. ProCC: Programmatic Reinforcement Learning for Efficient and Transparent TCP Congestion Control, *ACM International Conference on Web Search and Data Mining (**WSDM**)*, accepted, to be published, 2025. *Acceptance Rate: 23.4%*

14. Yuyang Ye, Lu-An Tang, Haoyu Wang, **Runlong Yu**, Wenchao Yu, Erhu He, Haifeng Chen, Hui Xiong. PAIL: Performance based Adversarial Imitation Learning Engine for Carbon Neutral Optimization, *ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD**)*, pages 6148-6157, 2024. *ADS Track Acceptance Rate: 20.0%*

15. Yujie Chen, **Runlong Yu**, Qi Liu, Enhong Chen, Zhenya Huang. Using Entropy for Group Sampling in Pairwise Ranking from Implicit Feedback, *International ACM SIGIR Conference on Research and Development in Information Retrieval (**SIGIR**)*, pages 2496-2500, 2023. *Short Paper Acceptance Rate: 25.1%*

16. Xiaojie Li, **Runlong Yu**, Guiquan Liu, Lei Chen, Enhong Chen, Shengjun Liu. Research on Multi-objective Optimization Algorithm for Coal Blending, *China National Conference on Big Data and Social Computing (**BDSC**)*, pages 37-60, 2023. *Regular Paper Acceptance Rate: 16.3%*

17. Yang Yu, Qi Liu, Likang Wu, **Runlong Yu**, Lei Yu, Zaixi Zhang. Untargeted Attack against Federated Recommendation Systems via Poisonous Item Embeddings and the Defense, *AAAI Conference on Artificial Intelligence (**AAAI**)*, pages 4854-4863, 2023. *Acceptance Rate: 19.6%*

18. Zhikang Mo, Qixiang Shao, Likang Wu, **Runlong Yu**, Jiexin Xu, Hongmei Song, Enhong Chen. TGNN: A GNN-Based Method with Multi-entity Node for Personal Banking Time Prediction, *Intelligent Networked Things: 5th China Conference (**CINT**)*, pages 68-79, 2023. *Acceptance Rate: 34.6%*

19. Yuren Zhang, Enhong Chen, Binbin Jin, Hao Wang, Min Hou, Wei Huang, **Runlong Yu**. Clustering based Behavior Sampling with Long Sequential Data for CTR Prediction, *International ACM SIGIR Conference on Research and Development in Information Retrieval (**SIGIR**)*, pages 2195-2200, 2022. *Short Paper Acceptance Rate: 24.7%*

20. Zheng Gong, Shiwei Tong, Han Wu, Qi Liu, Hanqing Tao, Wei Huang, **Runlong Yu**. Tipster: A Topic-Guided Language Model for Topic-Aware Text Segmentation, *International Conference on Database Systems for Advanced Applications (**DASFAA**)*, pages 213-221, 2022. *Acceptance Rate: 18.0%*

21. Huijie Liu, Han Wu, Le Zhang, **Runlong Yu**, Ye Liu, Chunli Liu, Qi Liu, Enhong Chen. Technological Knowledge Flow Forecasting through A Hierarchical Interactive Graph Neural Network, *IEEE International Conference on Data Mining (**ICDM**)*, pages 389-398, 2021. *Regular Paper Acceptance Rate: 9.9%*

22. Mingyue Cheng, Fajie Yuan, Qi Liu, Shenyang Ge, Zhi Li, **Runlong Yu**, Defu Lian, Senchao Yuan, Enhong Chen. Learning Recommender Systems with Implicit Feedback via Soft Target Enhancement, *International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR)*, pages 575-584, 2021. *Regular Paper Acceptance Rate: 21.0%*

23. Shiwei Tong, Qi Liu, **Runlong Yu**, Wei Huang, Zhenya Huang, Zachary A Pardos, Weijie Jiang. Item Response Ranking for Cognitive Diagnosis, *International Joint Conference on Artificial Intelligence (IJCAI)*, pages 1750-1756, 2021. *Acceptance Rate: 13.9%*

24. Yuyang Ye, Hengshu Zhu, Tong Xu, Fuzhen Zhuang, **Runlong Yu**, Hui Xiong. Identifying High Potential Talent: A Neural Network based Dynamic Social Profiling Approach, *IEEE International Conference on Data Mining (ICDM)*, pages 718-727, 2019. *Regular Paper Acceptance Rate: 9.1%*

25. Mingyue Cheng, **Runlong Yu**, Qi Liu, Vincent W. Zheng, Hongke Zhao, Hefu Zhang, Enhong Chen. Alpha-Beta Sampling for Pairwise Ranking in One-Class Collaborative Filtering, *IEEE International Conference on Data Mining (ICDM)*, pages 1000-1005, 2019. *Short Paper Acceptance Rate: 18.5%*

26. Han Wu, Kun Zhang, Guangyi Lv, **Runlong Yu**, Weihao Zhao, Enhong Chen, Jianhui Ma. Deep Technology Tracing for High-tech Companies, *IEEE International Conference on Data Mining (ICDM)*, pages 1396-1401, 2019. *Short Paper Acceptance Rate: 18.5%*

Books & Chapters

1. Tong Xu, **Runlong Yu**. Epidemic Prevention and Control Big Data Cloud Platform: Solutions for Major Public Health Emergencies, *Annual Report on Development of Big Data Applications in China No.4 (2020) (**Blue Book of Big Data Applications**)*, Social Sciences Academic Press, ISBN 978-7-5201-7651-4, 2020.

Submissions

1. **Runlong Yu**, Shengyu Chen, Yiqun Xie, Xiaowei Jia. A Survey of Foundation Models for Environmental Science.

2. Shiyuan Luo, **Runlong Yu**, Yingda Fan, Shengyu Chen, Yiqun Xie, Yanhua Li, Xiaowei Jia. Transferable Models for Stream Temperature Prediction across Different Spatial Regions and Scales.

3. Shiyuan Luo, Juntong Ni, Shengyu Chen, **Runlong Yu**, Yiqun Xie, Licheng Liu, Zhenong Jin, Huaxiu Yao, Xiaowei Jia, FREE: The Foundational Semantic Recognition for Modeling Environmental Ecosystems.

SELECTED PATENTS

1. Multiple pairwise personalized recommenders	CN109299370B, authorized
2. Recommendation methods for products of interest to users	CN109934681B, authorized
3. Negatively correlated search with asymmetry	CN110263906B, authorized
4. Legal information recommendation method and device	CN109684470B, authorized
5. Epidemic forecasting method and device	CN112652403B, authorized
6. Deep technology tracing for high-tech companies	CN110580261B, authorized
7. A GNN-based method for queuing time prediction in bank outlets	CN115640906A, examined
8. Method for product click-through rate determining	CN115018552A, examined
9. Intelligent financial management method to identify potential customers	CN114297477A, examined
10. Methods for predicting future technological knowledge flows	CN113989075A, examined
11. A joint dispatch method based on urban public transportation resources	CN112417753A, examined

GRANT WRITING

NSF Award 2425845   (Funded)   2024-2027
— "Collaborative Research: CAIG: Toward Next-Generation Global Forest Carbon
Monitoring via Integrated Sensing, Modeling and AI to Advance Carbon Cycle Science" $252,540

TEACHING EXPERIENCES

1. **Instructor**   Spring 2025
Principles of Data Mining (Graduate Course)
Department of Computer Science, University of Pittsburgh

2. **Instructor**   Fall 2024
Introduction to Data Science (Undergraduate Course)
Department of Computer Science, University of Pittsburgh

3. **Guest Teacher**   Spring 2024
Principles of Data Mining (Graduate Course)
Department of Computer Science, University of Pittsburgh

4. **Teaching Assistant**   Fall 2022 & Spring 2023
Machine Learning and Data Mining (Graduate Course)
School of Computer Science and Technology, USTC

5. **Teaching Assistant**   Fall 2020 & Spring 2021
Computer Science and Society (Undergraduate Course)
School of Computer Science and Technology, USTC

6. **Teaching Assistant**   Spring 2017
Database Systems and Applications (Undergraduate Course)
School of Computer Science and Technology, USTC

MENTORED STUDENTS

Underlined names represent students I mentored in publishing their first first-author papers.

University of Pittsburgh:
— Graduate: Shiyuan Luo, Chonghao Qiu, Xiaoting Li, Yingda Fan, Yiming Sun
— Undergraduate: Mariia Sierova

University of Science and Technology of China:
— Graduate: Qixiang Shao, Yujie Chen, Xiang Xu, Xiaojie Li, Zhikang Mo, Fangzhou Yao,
Yang Yu, Huijie Liu, Mingyue Cheng, Yuren Zhang, Zheng Gong, Yin Gu
— Undergraduate: Huibo Xu

INVITED TALKS

1. "Adaptive Process-Guided Learning: An Application in Predicting Lake DO Concentrations", in the
KGML 2024 workshop, Minneapolis, MN, USA, 2024.

2. "Cognitive Evolutionary Search to Select Feature Interactions for Click-Through Rate Prediction", in the
KDD 2023 conference, Long Beach, CA, USA, 2023.

3. "XCrossNet: Feature Structure-Oriented Learning for Click-Through Rate Prediction", in the PAKDD 2021
conference, Delhi, India, 2021.

4. "Negatively Correlated Search with Asymmetry for Real-Parameter Optimization Problems", in the
CCFAI 2019 conference, Xuzhou, China, 2019.

Program Committee Member for the following conferences:

— WWW2025, AAAI2025, IJCAI2025, PAKDD2025, AAAI2024, IJCAI2024, AAAI2023, IJCAI2023, AAAI2022, IJCAI2022, AAAI2021, IJCAI2021, etc.

Reviewer for the following conferences:

— ICML2025, ICLR2025, NeurIPS2024, ICLR2024, ICML2024, NeurIPS2023, ICML2023, NeurIPS2022, ICML2022, etc.

Reviewer for the following journals:

— IEEE Trans. KDE, IEEE Trans. BigData, ACM Trans. KDD, ACM Trans. RecSys, IEEE Trans. SMC: Systems, Communications of the ACM, Advanced Science, etc.

REFERENCES

1. **Xiaowei Jia**
Assistant Professor
Department of Computer Science, University of Pittsburgh
Pittsburgh, USA
xiaowei@pitt.edu

2. **Enhong Chen**
Professor, Vice Dean of the Faculty of Information and Intelligence
Fellow of IEEE, Distinguished Member of ACM
School of Computer Science and Technology, University of Science and Technology of China
Hefei, China
cheneh@ustc.edu.cn

3. **Paul C. Hanson**
Distinguished Research Professor
UW Center for Limnology, University of Wisconsin, Madison
Madison, USA
pchanson@wisc.edu

4. **Hui Xiong**
Chair Professor, Associate Vice President of HKUST (Guangzhou)
Fellow of AAAS and IEEE, Distinguished Scientist of ACM
Artificial Intelligence Thrust, Hong Kong University of Science and Technology (Guangzhou)
Guangzhou, China
xionghui@ust.hk

5. **Vipin Kumar**
Regents Professor, William Norris Chair
Fellow of AAAI, AAAS, ACM, IEEE, SIAM
Department of Computer Science and Engineering, University of Minnesota, Twin Cities
Minneapolis, USA
kumar001@umn.edu