Zi-Yuan Hu 胡梓淵

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Education Background

- **Sun Yat-sen University (SYSU), Guangzhou, China** Sep. 2018 – Jun. 2022 (expected)

  B.Eng. in Software Engineering, **Major GPA: 3.98/4.00, Overall GPA: 3.94/4.00**

Research Interests

- Data Mining, especially Recommender System
- Natural Language Processing, especially Text Classification and Text Matching
- Deep Learning and Knowledge Graph

Research Experience

- **Institute of Artificial Intelligence and Unmanned Systems, SYSU** Aug. 2019 – Jan. 2021

  Research assistant under the supervision of Prof. Chang-Dong Wang

Publications

* indicates equal contribution

➢ (Accepted) Chang-Dong Wang, Wu-Dong Xi, Ling Huang, Yin-Yu Zheng, **Zi-Yuan Hu** and Jian-Huang Lai, "A BP Neural Network Based Recommender Framework with Attention Mechanism", accepted by IEEE Transactions on Knowledge and Data Engineering (TKDE, IF=4.935, JCR Q1), in press 2020.

- In this work, we proposed a novel recommendation framework based on Back Propagation (BP) neural network with attention mechanism, namely BPAM++. Compared with DNNs, BPAM++ can not only reduce the computational and storage costs, but also alleviate the over-fitting issues.

➢ (Under Review) Chang-Dong Wang*, **Zi-Yuan Hu***, Jin Huang*, Zhi-Hong Deng*, Ling Huang, Jian-Huang Lai and Philip S. Yu, "BCFNet: A Balanced Collaborative Filtering Network with Attention Mechanism", submitted to ACM Transactions on Knowledge Discovery from Data (TKDD, IF=2.01, JCR Q2).

- In this paper, we have presented a novel recommendation model called Balanced Collaborative Filtering Network (BCFNet), which combines attentive representation learning (BCFNet-rl), attentive matching function learning (BCFNet-ml) and balance module (BCFNet-bm).
- Under the balance strategy and pre-training strategy, the proposed BCFNet model can not only alleviate the over-fitting issue caused by the high sparsity of interaction information, but also outperforms the state-of-the-art methods.

Projects and Competitions

➢ A Kaggle Research Code Competition called "Mechanisms of Action (MoA) Prediction" 2020

- Focused on the task of classifying drugs according to their biological activity
- Implemented three neural network sub-models, namely MLP, 1D-CNN, ResNet and TabNet, and then blended them into one model as our final submitted model with pre-training strategy
- Silver Medal, Top 2%, 80/4373

➢ A Kaggle Competition called "Riiid! Answer Correctness Prediction" 2020

- LightBGM + SAINT (a variant of Transformer)
- Bronze Medal, TOP 8%

➢ A Kaggle InClass Competition called "Liver Knows Your Age" (TOP 17% 6/35) 2020

➢ Kerberos System, a computer-network authentication protocol based on C language. 2020

➢ Shrine, an iOS campus social App based on Objective-C 2020
➢ A Kaggle Getting Started Prediction Competition called "Digit Recognizer" 2019
➢ SpongeChat, a local area network (LAN) chat software based on Java 2019

Honors and Awards

- **National Scholarship (Top 2%), Ministry of Education of China** 2020
- The First Prize Scholarship (Top 5%), SYSU 2020
- **Silver Medal (Top 2%), Kaggle Research Code Competition** 2020
- **Bronze Medal (Top 8%), Kaggle Research Code Competition** 2020
- Honorable Mention, Mathematical Contest in Modeling (MCM) 2020
- **National Scholarship (Top 2%), Ministry of Education of China** 2019
- The First Prize Scholarship (Top 5%), SYSU 2019
- The Third Prize, National Mathematical Contest in Modeling of Guangdong Province 2019

Extracurricular Activities

- Served as vice-leader of the school community, Student Academic Development Center of SYSU, 2019
- Participated in more than 50 hours of volunteer activities each year in 2018, 2019 and 2020

Skills

- Programming: Python, C/C++, Latex, Matlab, Golang, Objective-C and Java (ranked by proficiency)
- Language: Mandarin (Native speaker), Cantonese (Native speaker), English (CET6 569/750)