

# ZI-YUAN HU 胡梓淵

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🏠 <https://henryhzy.github.io/>

## 🎓 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, Text Matching and Knowledge Tracing
- Deep Learning and Knowledge Graph

## 🎓 RESEARCH EXPERIENCE

- **Department of Computer Science and Engineering, HKUST** Feb. 2021 – present  
Research assistant under the supervision of Prof. Yangqiu Song  
Research topic: NLP and Knowledge Graph, especially Graph Reasoning
- **School of Computer Science and Engineering, SYSU** Aug. 2019 – Jan. 2021  
Research assistant under the supervision of Prof. Chang-Dong Wang  
Research topic: Data Mining, especially Deep Learning-based Recommender System

## 📖 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 TKDE 2020, IF=4.935, JCR Q1)
- 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 TKDE 2020, IF=4.935, JCR Q1)
- 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 and ResNet, 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
  - Focused on the task of modeling a student's knowledge state based on the history of their learning activities
  - Implemented a Transformer based knowledge tracing model called SAINT+
  - 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

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- **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

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

## ⚙️ SKILLS

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- 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)