Haowen Wang

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EDUCATION

Imperial College London (ICL)   October 2020 – November 2021

Master of Applied Computational Science and Engineering.   Merit

Zhejiang University (ZJU)   September 2016 – July 2020

Bachelor of Engineering, Energy and Environment.   Outstanding

PROFESSIONAL ACTIVITIES

Reviewer @International Journal on Data Science and Technology   **July 2023 –Present**

Reviewer @ ICONIP2023   **2023**

Membership @ China Energy Research Society (CERS)   **Oct 2022 – Present**

Visiting Scholar @ Energy Transfer Research Lab @ UIUC, USA   **2019**

PUBLICATIONS & PATENT

- **Haowen Wang**, Yuliang Du, Congyun Jin, Yujiao Li, Yingbo Wang, Tao Sun, Piqi Qin and Cong Fan. GACE: Learning Graph-Based Cross-Page Ads Embedding For Click-Through Rate Prediction" International Conference on Neural Information Processing. Cham: Springer International Publishing, 2023

- Qingping Wang, **Haowen Wang**, and Haixia Pan "A constrained-time-based algorithm for vehicle maintain prediction", Proc. SPIE 12748, 5th International Conference on Information Science, Electrical, and Automation Engineering (ISEAE 2023)

- **H. Wang**, X. Ye, Z. Zhang, Y. Wang, Multihead Causal Distilling Weighting Is All You Need for Uplift Modeling, 2022 International Conference on High Performance Big Data and Intelligent Systems (HDIS). IEEE, 2022

- T. Wang, **H. Wang**, Y. Lin, M. Chen and J. Qian, "Numerical study on hydrodynamic cavitation of Tesla valve", *Chinese Journal of Chemical Engineering*, 2020 (04) 884-889

- **H. Wang**, Yang Luo, Wei Li. "Three-dimensional numerical simulation of single bubble growth in a manifold microchannel heat sink." Proceedings of the 7th International symposium on Micro and Nano Technology, ISMNT-7, Qingdao, China, April 26-28,2019

- Yangguan Chen, Longhan Zhang, Zhehong Ai, Yifan Long, Temesgen Muruts Weldengus, Xubin Zheng, Di Wang, **Haowen Wang**, Yiteng Zhai, Yuqing Huang, Xiao Le, Yaxuan Peng, Jing Jiang, Robot-accelerated development of a colorimetric CO_2 sensing array with wide ranges and high sensitivity via multi-target Bayesian optimizations, Sensors and Actuators B: Chemical, Volume 390, 2023

- Business processing method, device and equipment based on causal knowledge, CN115081631A

- GDP prediction method based on N-BEATS, CN114298411A

- Novel musical instrument based on Tesla valve reverse flow principle, CN110544464A

- Method, medium and equipment for measuring carbon emission of factory in cigarette industry, CN115577943A

WORK EXPERIENCE

Algorithm Researcher   **Alipay, Alibaba Group**

Shanghai, China   **Apr 2021– Present**

- Developed an item representation system based on content similarity and variational graph encoders, transferred data history from various channels to improve the efficiency of recommendation system cold start, increased click AUC from 0.76 to 0.94. The achievement was included in ICONIP2023 (CS Core Ranking A) GACE: Learning Graph-Based Cross-Page Ads Embedding for Click-Through Rate Prediction.

- Improved diversity control and priority sorting in recommendation systems based on causal weighting, simultaneously increasing UV_CTR by 1% and monthly revisit rate by 2.5%. The achievement "Multihead Causal Distilling Weighting Is All You Need for Uplift Modeling" was published in IEEE HDIS and received the Best Paper Nomination Award, with an invitation for an oral presentation.

- Proposed a large-scale model tuning framework for multi-modal and multi-task learning based on PEFT, named "cross-custom poly", which achieved a 5% improvement in various metrics compared to the industry standard in multi-modal tasks and text understanding generation tasks.

Data Scientist   **Tencent**

Shenzhen, China   **July 2021– Jan 2022**

- Designed data warehouse for data center, conducted Scala data development, indicator design, report development,

and established a quality control and data evaluation system.

➢ Responsible for building the Tencent Health question and answer system's recommendation system and specifying the recommendation strategy, iterated through three versions.

➢ Evaluated the search algorithms of various Tencent Health products (Tencent Health, Tencent Medical Dictionary, etc.).

Data Scientist	**Tencent**
Beijing, China	**Aug 2020– Dec 2020**

➢ Design and improve the data recommendation algorithm based on the actual business needs. In order to change the distribution of large-scale users, a recall optimization scheme based on adaptive learning is designed. In online abtest, the retention of new users has been improved by 2.6%.

➢ Carry out the research on the importance of term based on xgboost semantic understanding, which helps the search business, compare the winning rate with the word weight ranking effect of TEG. In the online GSB test, the winning rate was 28.70%, and the failure rate was only 11.66%. In the online test, the hit rate was increased by 18% compared with the previous one.

➢ Analyze the user profile and preference data of 100 million level data (Spark & SQL), Aiming at the Simpson paradox in the analysis, lurking variables are mined to explain business problems, specify the recommendation strategy and formulate the specific implementation strategy of A / B test according to the actual online push situation.

➢ Design, track and duplicate A/ B test, iterative analysis results and recommend system strategy scheme, comprehensively improve user retention and average stay time from the policy level and algorithm level

NLP Algorithm	**Yiwise AI**
Hangzhou, China	**May 2020– Aug 2020**

➢ Based on Bert, RNN and LSTM model, the algorithm of similar text generation and text enhancement is researched.

➢ A high-dimensional mapping similarity matching algorithm based on twin network is proposed, which can shorten the online reaction time by 50% and solve the problem of long time of similar text matching algorithm.

➢ Based on the research of text enhancement and encoder, the twin network text classification algorithm based on Bert model is improved, and the classification accuracy is improved by 4%.

RESEARCH EXPERIENCE

GAN Modeling uncertainty quantification for an idealized town	Jun2021– Oct 2021
Supervised by Prof. Christopher Pain (ICL)	London, UK

➢ Applied and compared the kernel-PCA, Autoencoder to get low dimensional latent vectors

➢ Considering the generative capabilities of the GANs, adjust it as Pred-GAN as a way to represent uncertainties in modelling and in particular to epidemiological modelling within a small town.

➢ Use a combination of data assimilation and uncertainty analysis to track the course of disease spreading through the population

Multivariate analysis combination with hierarchical condensation	Jul2019– Sept 2019
Supervised by Prof. Miljkovic Nenad (UIUC)	Champaign, IL

➢ Collected a data set of droplet generation frequency and growth rate Using image binarization to record in MATLAB

➢ Established heat transfer model for hierarchical condensation based on the droplet size distribution.

➢ Used neural networks in Python to predict the heat transfer coefficient and achieved 98 % training accuracy

AWARDS

1st of Kaggle 'X-RAY Classification' , 2021

Champion of KPMG Global Idea Challenge Greater China, 2020

1st of the 12th National University Student Social Practice and Science Contest on Energy Saving & Emission Reduction, 2019

Third Prize of the China University Students Mechanical Engineering Innovation and Creative Competition, 2019

Member of Excellent Engineer Plan (Top 10%), 2018