WU CHENGYUE

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EDUCATION

The University of Hong Kong **Sept.2023 — June.2027 (expected)**
Ph.D. in Computer Science *Hong Kong , China*

Harbin Institute of Technology, Honors School(Top 5% in HIT) **Aug.2019 — June.2023**
*B.E. in Computer Science - **CGPA : 95.6/100 - Rank :1/144(0.7%)*** *Harbin, China*

Harbin Institute of Technology(Shenzhen) **Aug.2021 – Aug.2022**
Exchange student in Computer Science *Shenzhen, China*

HONORS & AWARDS

National Scholarship	2019 — 2020
Hong Kong PhD Fellowship	2023
HKU Presidential PhD Scholarship	2023
Outstanding Graduate of Heilongjiang Province	2023
Samsung Scholarship	2020 — 2021
Tencent Scholarship	2021 — 2022
Best Student Paper Award in ICDIS 2022	2022
Runner-up in NTIRE Challenge CVPR 2022 Image Inpainting	2022
First Prize of School Scholarship	2019 — 2021
First Prize in Chinese National Mathematics Modelling Contest for College Students	Oct. 2021
Honorable Award in American Mathematics Modelling Contest for College Students	Mar. 2021

PUBLICATIONS

- **Wu C**, Wang T, Ge Y, et al. π-Tuning: Transferring Multimodal Foundation Models with Optimal Multi-task Interpolation[J]. arXiv preprint arXiv:2304.14381, 2023.

- Chunnan Wang, Xingyu Chen, **Chengyue Wu**, et al. AutoTS: Automatic Time Series Forecasting Model Design Based on Two-Stage Pruning[J]. arXiv preprint arXiv:2203.14169, 2022.

- Andres Romero, Angela Castillo, Jose Abril-Nova, Radu Timofte, Ritwik Das, Sanchit Hira, Zhihong Pan, Min Zhang, Baopu Li, Dongliang He, Tianwei Lin, Fu Li, **Chengyue Wu** et al. NTIRE 2022 image inpainting challenge: Report[C]//Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition. 2022: 1150-1182.

- Wang Z, Duan S, **Wu C**, et al. Generative Data Augmentation for Non-IID Problem in Decentralized Clinical Machine Learning[C]//2022 4th International Conference on Data Intelligence and Security (ICDIS). IEEE, 2022: 336-343.

RESEARCH EXPERIENCES

Automatic Time Series Forecasting Model Design **Aug.2021—Feb.2022**

Supervised by Prof. Hongzhi Wang, Mass Data Research Center, HIT Harbin, China

- We propose AutoTS algorithm trying to utilize the existing design skills and design efficient search methods to effectively solve Automatic Time Series Forecasting (TSF) model design problem which aims to help users to efficiently design suitable forecasting model for the given time series data scenarios.
- Realized the Neural Architecture Search (NAS) algorithm, by adopting Knowledge Graphs and reinforcement learning to prune the search space. On four public multivariate time-series datasets and all forcasting horizons, model searched surpasses the current SOTA model in terms of model performance and search efficiency.
- Improve the search model architecture with the proxy model abstracted as a recurrent neural network, which exceeded the performance of the original architecture in comparative experiments.

Federated Learning under non-IID Distribution   Dec.2021—Mar.2022

Supervised by Prof. Chuanyi Liu   Shenzhen, China

- To improve the model debugging effect in a decentralized private computing environment, we proposed to train the Generative Adversarial Network (GAN) to generate data. This was to solve the poor training effect caused by the non-independent and identical distribution (non-IDD) of data sources.
- Proposed and implemented the Swarm Learning to solve the problem of non-IID data between nodes by data augmentation. Compared the performance of the transformed structural data and image data after data augmentation with WGAN and DCGAN.

Generalized Vision Pre-training with Low/Zero Sample Transfer   Sept.2022—Jun.2023

Supervised by Prof. Ping Luo   Hong Kong, China

- Propose a semi-supervised model using a large-scale unpaired image/text dataset to assist learning for pre-trained graph-text pair data, where semantic concept missing and distribution imbalance problems are found.
- For transfer learning of pre-trained models to downstream tasks, the semantic sparsity of the downstream dataset with few/zero samples is revealed, and propose an parameter-efficient transfer learning method introducing an external knowledge base.

PROJECTS

NTIRE Challenge CVPR 2022 Image Inpainting ↗   Feb.2022 — Apr.2022

- Propose to explore the types of mask used in the training process. At the same time, using our mask generation strategy can effectively improve the results of the model.
- Use joint spatial and frequency loss in spatial domain and frequency domain with a regular term to reconstruct the image.
- The proposed GLaMa was ranked first in terms of PSNR, LPIPS and SSIM in the NTIRE 2022 Image Inpainting Challenge Track 1 Unsupervised.

INTERNSHIP

Tencent Holdings Limited. ↗   Sept.2022 – Present
Research Intern   *Shenzhen, China*

- Research on the pre-finetuning techniques used on the large pretrained multimodal models.
- Research on the data centric training for pretrained multimodal models.

The University of Hong Kong. ↗   Sept.2022 – Jun.2023
Research Assistant   *Hong Kong, China*

- Research on the similarity between intra- and inter-modal tasks.
- Research on the parameter-efficient transfer learning of vision-language pretrained models.

Beijing Bytedance Technology Co., Ltd. ↗   Jan.2022 – Apr.2022
Backend Developer Intern   *Beijing, China*

- Aimed to design and implement microservices with load balancing and high availability, based on the fact of providing TikTok's international live broadcast with the global distributed IDC architecture.
- Responsible for architecture design and development. Participated in the technology selection and solution design of data index authentication service.
- Develop unified API interfaces to microservices for heterogeneous downstream data sources. Support configurable API, thus preventing manual rewrite and reducing human resources by up to 50%.

TECHNICAL SKILLS

Program Languages: Python, Java, C, C++, SQL, Go
Certification: Certified Software Professional (CSP) Top 5.57%
Language: CET-6: 582, IELTS: 7.5, Mandarin (mother tongue)
Developer Tools: Pycharm, VS Code, Goland, Intellij Idea Ultimate
Technologies/Frameworks: Pytorch, Scikit-Learn, Linux, GitHub, Kitex