Jianghai Chen

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Education

- **Nankai University (Project 985)** Tianjin, China
  Bachelor of Intelligent Science and Technology; GPA: 3.67/4.0 (87.49/100) *Sep. 2019 – Jun. 2023*
  - **Courses**: Advanced Programming Language(93.4), Probability Theory and Mathematical Statistics(92), Calculus(94), Machine Learning(94), Computer Vision(92), Deep Learning(94), Reinforcement Learning(95)

  Bachelor of Finance, Dual Degree
- **The University of HongKong (QS top20 worldwide)** HKSAR
  Master of Science in AI *Sep. 2024 – Jan. 2026(expect)*
  - **Courses**: Foundations of artificial intelligence, Optimization in artificial intelligence,Applied data mining and text analytics
- **Selected Prize**:
  - National Encouragement Scholarship two times
  - Honorable Mention in the American Mathematical Contest in Modeling (MCM) one time

Research Experience

- **National University of Singapore, HPC-AI Lab & Huawei | Noah's Ark Lab** Singapore
  Research Intern. In charge of effective training frameworks to scale transformers. *Mar. 2022 – Jun. 2023*
  - **Project**: Studied the relationship between transformer configuration and training objectives. Supervised by Presidential Young Professor Yangyou. **(ICML 2023)**
  - **Responsibility**: Collect pre-training data, conduct experiments, perform theoretical derivations.
- **Nankai University, Institute of Robotics & Automatic Information System** Tianjin, China
  Student Research Intern. In charge of contrastive learning methods for fault diagnosis. *Sep.2021 – Jun. 2022*
  - **Project**: Research on addressing bearing fault diagnosis in scenarios of data scarcity through self-supervised pre-training (contrastive learning) methods. Supervised by Prof. Boyuan Yang.**(ISIE 2022)**
  - **Responsibility**: Deployed Momentum Contrast(MOCO) pre-training framework for bearing fault diagnosis model, alleviates the difficulties faced by existing training modes in scenarios with limited labeled samples.
- **National Training Program of Innovation and Entrepreneurship for Undergraduates** Tianjin,China
  Key Participant. In charge of deep learning algorithm and experiments. *Apr. 2021- Apr. 2022*
  - **Project**: Rapid Loss Assessment and Disaster Relief Application of Typhoon Disasters Based on Machine Learning: A Case Study of Ningbo. The project was supervised by Prof. Xiaowei Chen.
  - **Focus**: Research on the application of machine learning methods in rapid assessment of catastrophic events.
  - **Responsibility**: Develop machine learning methods, select disaster-causing indicators, and conduct experimental analysis. We wrote a research paper and received a second prize in Tianjin at the conclusion.

Industry Experience

- **Baidu, Deep Learning Technology Platform Department (DLTP)** Beijing,China
  AI Intern. In charge of automatic parallel algorithms for large-scale neural networks. *Oct 2022 - Apr 2023*
  - **Auto-Parallel**: Assisted in the design and implementation of rule-based fully auto-parallel algorithm for PaddlePaddle. Innovatively introduced pattern matching strategy into the two-stage searching algorithm, significantly improving the search efficiency.
  - **Contribution**: Participated in algorithm design, operator development, conducted practical verifications on various models including GPT and Resnet. Responsible for authoring research paper.
- **HPC-AI Tech, MLsys** Beijing,China
  MLsys Engineer. In charge of DL system and high-performance inference framework. *Jun 2023 - Jul 2024*
  - **Training System**: Designed pipeline parallelism architecture for Colossal AI, which is a distributed system for deploying large scale neural networks. Developed foundational components and practical tests.
  - **Inference Framework**: Devoloped Colossal-Infernce, an effective and light-weighted inference framework.
  - **Auto-Parallel**: Design and developed a profiling based auto-parallelism method.
- **HUAWEI | NOAH'S ARK LAB** HKSAR
  Reasearch Intern. In charge of training and optimizing MOEs with deterministic routing *Nov 2024 - Now*
  - **Routing Strategy**: Explore the deterministic routing strategy and other startegies for MOE training.
  - **Upcycling Training**: Research on the the upcycling training method for continually train a dense model into MOE model.

Publications

- **A Study on Transformer Configuration and Training Objective**: Fuzhao Xue, Jianghai Chen, Aixin Sun, Xiaozhe Ren, Zangwei Zheng, Xiaoxin He, Yongming Chen, Xin Jiang, Yang You. *ICML 2023*
- **Self-supervised Contrastive Learning Approach for Bearing Fault Diagnosis with Rare Labeled Data**: Jianghai Chen, Boyuan Yang, Ruonan Liu *ISIE 2022*

Skills & Self-evaluation

- **Language**: Mandarin (Native), English (Fluent, IELTS 7.0 with no subtitles below 6.0), CATTI Grade 3
- **Software**: Proficient in MS Office and Latex. Capable for multiple coding languages, C++, python, etc.
- **Self-evaluation**: Target-oriented with passion and willpower, rational and logical with intellectual curiosity.