XIANG FEI

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EDUCATION

The Chinese University of Hong Kong (Shenzhen) 2020.09 - Present
Bachelor of Engineering, Computer Science and Engineering
Cumulative GPA: 3.773/4.000
Major GPA: 3.886/4.000

The University of California, Berkeley 2023.01 - 2023.05
Visiting students (Spring 2023)
Cumulative GPA: 4.000/4.000
Core Courses: (CS182) Designing, Visualizing and Understanding Deep Neural Networks; (EECS C106B) Robotic Manipulation and Interaction; (CS170) Efficient Algorithms and Intractable Problems

Carnegie Mellon University 2023.06 - 2023.08
Summer Scholar
Robotics Institute Summer Scholars (RISS) Program
Biorobotics Lab, Mentor: Prof. Howie Choset

PAPERS (INCLUDING WORKING PAPERS)

"Power System Fault Diagnosis with Quantum Computing and Efficient Gate Decomposition," Ready to Submit (First Author)

"Linear-Layer-Enhanced Quantum Long Short-Term Memory for Carbon Price Forecasting," Accepted by Quantum Machine Intelligence (Third Author)

"Carbon Disclosure Effect on Listed Companies under the Net-zero Emission Target: The Case of China," National Outstanding Award of National University Student Energy Economy Academic Creativity Competition. Ready to Submit (Third Author)

"Simulation Modeling Analysis of Carbon-Electricity Market in the Context of Carbon Neutrality," Submitted to Journal of Electric Power Science and Technology (Co-author)

"Carbon Rating Report of China's 100 Overseas Listed Companies," (REPORT) Published at the 2022 Global Forum on Sustainable Development (Co-author)

RESEARCH EXPERIENCE

Energy Internet Lab, School of Science and Engineering, CUHK(SZ) 2021.08 - Present
Mentor: Prof. Junhua Zhao

Quantum Computing Algorithm for Power System Fault Diagnosis 2022.08 - Present
· Solved power system fault diagnosis problem based on quantum approximate optimization algorithm.
· Used Ising model to derive the Hamiltonian of the power system fault diagnosis problem.
· Proposed and proved the symmetric equivalent decomposition of multi-qubit rotation gate.
· Applied the small probability event characteristic in power system faults to the proposed quantum algorithm.
· Wrote the code, conducted the experiments and wrote the whole paper.

Quantum Machine Learning for Carbon Price Forecasting 2022.04 - 2022.09
· Proposed and applied Linear-Layer-Enhanced Quantum Long Short-Term Memory for carbon price forecasting.
· Wrote the code to implement the proposed L-QLSTM and wrote the paper.
· The paper has been accepted by Quantum Machine Intelligence.

Establish a Firm-Level Carbon Emission Database with Computer Vision 2022.05 - 2022.12
· Proposed the idea to use computer vision technique to obtain carbon emission data from the ESG reports in PDF

format.
· Designed a pipeline using PP-PicoDet, SLANet and Ultra Lightweight OCR System (PP-OCRv3) to extract table content in ESG reports.
· Wrote the code to implement the web crawlers, table recognition and the OCR system.

The Impact of Carbon Disclosure on Company Financial Performance 2022.01 - Present
· Established a database of 4336 Chinese A-share listed companies' emission disclosure information (boolean variables) from 2017 to 2022 using web crawlers and traditional table recognition technology.
· Established difference-in-differences models to analyze the impact of carbon disclosure behavior on company fundamentals from cumulative and dynamic perspectives.
· Explored the association between company stock market performance, carbon disclosure behavior and the establishment of China's national/regional emission trading systems (ETS).
· Read relevant papers and completed the writing of the paper.

Shenzhen Institute of Artificial Intelligence and Robotics for Society (AIRS) 2021.08 - 2022.09
Mentor: Prof. Junhua Zhao

Carbon Rating Report of China's 100 Overseas Listed Companies 2021.08 - 2022.06
· Participated in the design of the carbon score calculation method.
· Participated in the selection of metrics that can measure corporate carbon scores.
· Collected and analyzed the energy disclosure data of China's 100 Overseas Listed Companies.
· The research report published at the 2022 Global Forum on Sustainable Development.

Simulation Modeling Analysis of Carbon-Electricity Market 2022.07-2022.09
· Read relevant papers and completed the writing of the whole paper.
· Revise the paper according to the review comments.

Human Language Technology Laboratory, Shenzhen Research Institute of Big Data 2022.09 - Present
Mentor: Prof. Haizhou Li

EEG-based auditory attention 2022.10 - Present
· Participated in the collection experiments of EEG data.
· Read relevant papers and reproduced some CNN-based EEG-driven auditory attention methods.
· Participated in ICASSP2023 manuscript review.

INTERNSHIP EXPERIENCE

Energy Internet Lab, SSE, CUHK(SZ) 2021.08 - Present
Undergraduate Research Assistant
· Research on quantum computing, power system, smart grid, deep learning, carbon market.

Winning Health Technology Group Co.,Ltd. 2022.07 - 2022.09
Algorithm Engineer (Computer Vision)
· Responsible for monocular endoscope 3D reconstruction project.
· Implement 3D reconstruction of gastrointestinal tract based on supervised CNN, Structure from Motion and Marching Cubes Method.
· Participated in the production of the company's science and technology festival promotional video.

Shenzhen Teabreak Network Technology Co., Ltd. 2020.12 - 2022.3
Leader of the back-end development department
· Deeply involved in the development of more than 5 products.
· Led the cooperation of the entrepreneurial team of China University of Political Science and Law.
· Undertook the Halloween promotion activities of JD.com, Inc. in CUHK(SZ).
· The entrepreneurial team with the highest score for the school's incubation base 2021.

COMPETITION EXPERIENCE

2023 National University Student Energy Economy Academic Creativity Competition
· National Outstanding Award of Graduate Group (Top 10 in China) 2023.05

2022 National University Student Energy Economy Academic Creativity Competition
· National Outstanding Award of Undergraduate Group (Top 5 in China) 2022.05

2022 CCF "Sinan Cup" Quantum Computing Programming Competition
· National Second Prize (Top 18 in China) 2022.08

2022 Mathematical Contest in Modeling
· Meritorious Winner (Top 7% of the world) 2022.05

HONORS & AWARDS

2021-2022 Academic Performance Scholarship of The Chinese University of Hong Kong, Shenzhen 2022.12
Undergraduate Research Award of The Chinese University of Hong Kong, Shenzhen 2022.11
2021-2022 Dean's List Honor of School of Data Science 2022.09
Received the offer to the 2022 Summer Program at Pembroke College, University of Cambridge 2022.01
2020-2021 Master's List Award of Muse College 2021.11
2020-2021 Dean's List Honor of School of Data Science 2021.09
Bowen Scholarship of The Chinese University of Hong Kong, Shenzhen 2020.09

EXTRACURRICULAR ACTIVITIES

Teaching Assistant of the Discrete Mathematics Course
· Take tutorial courses for students.
· Make out homework questions for students and grade them.
· Answer questions for students during my office hours.

Peer Advisor of the School of Data Science
· Organize orientation activities.
· Organize freshmen to communicate with professors.
· Advice for freshmen's study and life.

Member of the Chinese University of Hong Kong (Shenzhen) Basketball Team
· Participated in the second level of the Chinese University Basketball League.
· Several friendly matches with Shenzhen Technology University, Shenzhen Polytechnic, and Shenzhen Sports School.

INTERESTS, LANGUAGES, SKILLS

Previous Fields of Research:
· Quantum Computing, Deep Learning, Power System, Smart Grid, Computer Vision, Neuromorphic Computing, Carbon Market
Languages:
· English, Mandarin (native)
Skills:
· Python, Pytorch, C++, C, Matlab, Django, MySQL, Linux, Git, CUDA, Latex, Microsoft Office