

# Zhi-Bo Liu

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## EDUCATIONS

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### **Xi'an Jiaotong University, Xi'an, China**

09/2021 - Now

Ph.D. Student in CS. Research Interests: Medical AI, Green AI

### **George Washington University, Washington, D.C., USA**

09/2014-12/2016

Master of Science in Statistics

### **Peking University, Beijing, China**

04/2017-11/2019

Visiting Student, Computer Vision

### **Huazhong University of Science and Technology, Wuhan, China**

09/2010-06/2014

Bachelor of Science in Applied Mathematics

## WORK EXPERIENCES

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### **Boyuu Electric Company | Xi'an, China**

12/2019-12/2020

*Senior AI Researcher*

- Participated in IEC Standard Specification (TS) Drafting.
- Contributed to the State Grid Wuxi Electric Power Supply Company's science and technology project, independently completing the sixth chapter of the final technical report.

### **National Engineering Laboratory for Video Technology | Peking University, Beijing, China**

04/2017-11/2019

*Student Intern*

- Participated in research on Reinforcement Learning, focusing on Multi-Agent Deep Reinforcement Learning Systems. Conducted coding and model training using publicly available datasets.
- Collaborated with teams from Tsinghua University's Future Lab on AI Art research and projects.

## PROJECTS IN PROGRESS

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## Non-intrusive Load Monitoring Model based on Bidirectional Encoder Representations from Transformers

- **Green AI**: Built a Non-Intrusive Load Monitoring (NILM) deep learning model in Pytorch based on bidirectional encoder representations from transformers (BERT). Trained & tested on publicly available dataset. Paper is about to be submitted in May 2024

## A Predictive Model for Steady-State Power Quality Indicators Based on Data Mining.

- **Green AI**: Built a prediction model for electric power quality indicators based on Vector Auto Regressive (VAR) Model. Trained and tested on collected dataset.

## GymHisto: Custom OpenAI Gym Environment for Histopathology Image Analysis

- **Medical AI**: Built a Custom Farama Gymnasium environment using OpenSlide Python library for downstream task of whole slide image analysis. Paper writing is in progress. Paper writing is in progress

## HistoRL: Histopathology Image Classification with Deep Reinforcement Learning

- **Medical AI**: Developed a RL model based on policy gradient method in order to solve gigapixel whole slide image classification task. Model training & testing are in progress.

# PUBLICATIONS

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**Zhibo Liu, Feng Gao, Yizhou Wang. A Generative Adversarial Network for AI-Aided Chair Design. *IEEE Conference on Multimedia Information Processing and Retrieval (IEEE MIPR), 2019*** [project page](#)

- Presented a deep neural network designed to enhance the human process of chair design, incorporating an image synthesis module and a super-resolution module. This work represents the first instance of a physical chair created with deep neural network assistance, effectively bridging the gap between AI and design.

**Juncheng Liu, Zhibo Liu. Analysis of Power Quality Evaluation Method Stipulated by IEC 62749: Assessment of power quality-characteristics of electricity supplied by public networks. *High Power Converter Technology, 2016***

- Analyzed various methods for evaluating power quality (PQ) and Electromagnetic Compatibility (EMC), concluding that under identical limitation values, PQ evaluation methods are stricter than those for EMC.

**Juncheng Liu, Zhibo Liu. Analysis for Active Power Filter (APF) Application Bottlenecks. *Information Technology - Power Quality, 2012***

- Investigated the bottlenecks in Active Power Filter (APF) applications and its response characteristics to dynamic harmonics. Conducted simulations to assess APF response to changes in dynamic harmonic sources.

# RESEARCH INTERESTS & SKILLS

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**Medical AI, Green AI, AI Art, Reinforcement Learning, Statistical Learning**

**Coding Skills:** Python, Pytorch, Bash, Latex, TensorFlow, R, MATLAB, JavaScript