# Ruichang Zhang

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## Education Background

**University of Electronic Science and Technology of China (UESTC)**, Chengdu, China          2019 - present
　　Master Student, Computer Science.          **GPA**:3.8/4.0
**Xiamen University**, Xiamen, China          2015 - 2019
　　Bachelor of Chemistry
　　Bachelor of Economics (Minor Degreee)

## Research Experience

**Controlling Traffic flow in a Medium Road Net through Deep Reinforcement Learning**          Apr.2021 - Jun.2021
- Achieved a maximum average vehicle passing delay ratio of 1.54 and a maximum serving vehicle number of 126572 on a virtual road net of 2086 intersections by developing several deep reinforcement learning algorithms such as DQN and PPO.
- Designed an expert system based on maximum pressure to obtain trajectories. Stacked imitation learning and reinforcement learning by adding expert data into replay buffer.
- Concatenated information of neighboring intersections as input observation to improve accuracy.
- Ranked 28th out of 1156 teams in KDD Cup 2021, City Brain Challenge.

**Running a Power Network through Deep Reinforcement Learning**          Jul. 2020 - Nov. 2020
- Deployed several deep reinforcement learning agent on IEEE-45, a simulated electric power network with 45 nodes, to prevent the grid from unexpected events and keep delivering reliable electricity.
- Reduced action space by previously simulating top k actions according to their corresponding reward.
- Ranked 33rd out of 256 competitors in L2RPN NEURIPS 2020, Robustness Track.

**Screening Suspected Patient through Supervised Learning**          Mar. 2020 - May. 2020
- Selected feathers according to Pearson coefficient to cut off highly related feathers.
- Used random forest, kNN and XGBoost to predict the possibility of a suspected patient.

**Predicting Physical Quantity of Well through Supervised Learning**          Aug. 2020 - Feb. 2021
- Preprocessed the curve by median filter to reduce noise.
- Divided the curve into several parts using k-means clustering and perform training and evaluating tasks on each segmentation.

## Award and Honor

Second Prize Scholarship, UESTC, 2021
Second Prize Scholarship, UESTC, 2020
Third Prize Scholarship, UESTC, 2019

# Publication

1. Yanru Zhang, Yingjie Zhou, Changkun Jiang, Yan Wang, **Ruichang Zhang**, George Chen. Plug-In Electric Vehicle Charging with Multiple Charging Options: A Systematic Analysis of Service Providers' Pricing Strategies. *IEEE Transactions on Smart Grid* 12.1 (2020): 524-537, doi:10.1109/TSG.2020.3020044
   **IF=8.267, JCR-1**

2. Lianteng Song, Zhonghua Liu, Chaoliu Li, Congqian Ning, Yating Hu, Yan Wang, Feng Hong, Wei Tang, Yan Zhuang, **Ruichang Zhang** and others. Prediction and Analysis of Geomechanical Properties of Jimusaer Shale Using a Machine Learning Approach. *SPWLA 62nd Annual Logging Symposium. OnePetro* 5.20(2021), doi:10.30632/SPWLA-2021-0089