

# MINGHUAN LIU

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## EDUCATION

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**Southwest Jiaotong University (SWJTU)**

*Sep. 2015 - Jul. 2019 (expected)*

B.S. in Computer Science and Technology

- Overall GPA: 3.84/4.0    Ranking: 1/98
- Key Lab of Cloud Computing and Intelligent Technology
- Advisor: Tianrui Li
- **Currently I am a pre-graduate student of Apex Lab. at Shanghai Jiaotong University supervised by Prof. WeinanZhang and Prof. Yong Yu**

## RESEARCH EXPERIENCES

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**Generative Adversarial Exploration for Reinforcement Learning**    *Feb. 2019 - Apr. 2019*

*Advisor: Prof. Weinan Zhang*

- This work proposed a novel method for the exploration problem in Reinforcement Learning with Generative Adversarial Network
- As a main author, write the most of the paper
- Submitted to IJCAI19

**Automatic Proofreading in Chinese: Detect and Correct Spelling Errors in Character-level with Deep Neural Networks**    *Apr. 2017 - Apr. 2018*

*Advisor: Prof. Tianrui Li*

- This study focused on automatic detection and correction spelling errors in Chinese text
- Proposed the candidate attentive checker and the double attentive checker, using confusion sets and attention mechanism

## DATA MINING COMPETITION EXPERIENCE

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**Sports Analytics Challenge sponsored by PSG**

*Mar. 2019 - Apr. 2019*

*SOLO*

- This task requires to predict the identity of a player who has performed certain actions as well as predictions about the team information and ball coordinates of the next event on that game
- I considered the above questions as 3 types: a Fine-grained Classification problem, a 2-class classification problem and a regression problem
- I made a lot of work on pre-processing the given data which is in xml format and is event-unit sequence data of different matches
- I proposed 2 solutions: a GBDT solution for the 2-class classification and the regression problem; a Deep Learning solution with RNN for the Fine-grained Classification, the 2-class classification and the regression problem
- This competition has no leaderboard

**TOP 5, Liver Cancer Imaging AI Diagnosis**

*Jan. 2019 - Mar. 2019*

*With the other three team mates*

- This competition is to predict the tumor diagnosis given the desensitized CT data of numbers of patient
- We proposed 3D convolution network with Res-IBN Block, Batch Normalization and mixed 2D/3D Downsampling
- We set up a online tumor diagnosis system which can predict the condition of given CT data and make a model visualization using CAM to give the proof of diagnosis to help doctors locate the lesion as fast as possible

## TOP 10, SCADA Data Missing Repair Competition

Jan. 2019 - Mar. 2019

*With the other two team mates*

- This task need a prediction of missing SCADA data, the meaning of data is desensitized
- We did temporal and spacial feature engineering and use ensemble model of GBDT, Decision Tree and designed interpolation methods

## TOP 3, AI Challenger 2018 in Weather Forecasting

Oct. 2018 - Nov. 2018

*With the other one team mates*

- This competition requires to make the weather indicators prediction, containing the temperature, humidity and the wind speed
- We did feature engineering from temporal data and use a single GBDT model without ensemble to model the 3 indicators respectively

## 28 / 175, Guoneng Rixin Photovoltaic Power Forecast Contest

Oct. 2018 - Nov. 2018

*With the other two team mates*

- This task is to make the prediction of the photovoltaic power generation at certain time given the sensor data sampled from the environment
- We did feature engineering from temporal data and related variables, using a single GBDT model without ensemble
- The gap between us and the No.1 is only 0.02 on averaged mae evaluation metric

## PROJECTS EXPERIENCE

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### StarCraftII Minigame AI

Jul. 2018 - Aug. 2018

*Advisor: Lisen Mu, Jingchu Liu*

- This is a work in Deecamp 2018, which gained Great Demo Award
- Use reward shapping and hierarchical reinforcement learning, gain higher results than benchmarks on minigame CollectMineralShards and BuildMarines

### Verication Code Identification

Mar. 2017 - Apr. 2017

- A naive implementation of BP and CNN based on Numpy and Matlab

## AWARDS & HONORS

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**National First Prize, China Undergraduate Mathematical Contest in Modeling** 2017

**Meritorious Winner, Mathematical Contest In Modeling** 2017

**Third Prize, ACM Programming Competition in Southwest Division of China.** 2017

**China National Scholarship** 2016&2017

- The highest honor for undergraduates nationally by Ministry of Education of China

**Tang Lixin Scholarship** 2017

- Only 60 students the whole school (including the M.S and the Ph.D students)

**IBM Scholarship** 2017

- Only 3 students the whole school

## SKILLS

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**Machine Learning:** Pytorch, Tensorflow, Scikit-Learn, lightGBM

**Programming Languages:** Python, MATLAB, C / C++, Java, LATEX

**Standard Tests:** TOFEL(88 for now), CET-6(574), CET4(616)

**Hobbies and Interests:** Soccer Swimming