JIREN LI

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EDUCATION

Northwestern University (NU) Illinois, USA

Master of Science in Computer Engineering Sept. 2021– Dec. 2022 (expected)

- Current GPA: 3.86 / 4.00

Southwest Jiaotong University (SWJTU) Sichuan, China

Bachelor of Engineering in Electronic Information Engineering Sept. 2017 – Jun. 2021

- Major GPA: 3.77 / 4.00 | Major Average Score: 90.44/100 | Ranking: 6/128

RESEARCH EXPERIENCE

Computational 3D Imaging and Measurement Lab | Research Project Illinois, USA

Machine learning based single-shot phase unwrapping | Instructor: Florian Willomitzer Apr. 2022 – Present

- Designed and constructed a scene contains a projector, a camera, an object and a background in Mitsuba renderer
- Traced the rays in the scene to generate wrapped phase maps, true phase maps and sinusoid fringe images of different 3D model objects as dataset
- Trained convolutional LSTM models to predict true phase maps from wrapped phase maps and fringe images
- Applied this model to other phase maps data from the lab

Chinese Research Institute of Land and Big Data | Student Research Training Program Sichuan, China

Intelligent Image Recognition Technology for Land Use Type | Instructor: Jin Huang Mar. 2019 – Apr. 2020

- Designed a semantic segmentation model based on U-Net for land usage classification in twelve categories
- Evaluated model with land images from satellites, reaching 85% pixel accuracy and 80% mean pixel accuracy
- Embedded the network in an encapsulated recognition software, which was applied in the 3rd National Land Survey

Southwest Jiaotong University Laboratory | Personalized Research Project Sichuan, China

Railway Catenary Pillar Number Recognition | Instructor: Kejia Xu Jun. 2018 – Mar. 2019

- Implemented LeNet-5 with NumPy to learn about machine learning and CNN
- Created an End-to-End model based on Faster RCNN to recognize numbers on railway catenary pillars

WORK EXPERIENCE

LAMIdata Corporation, Limited | Algorithm Intern Sichuan, China

Grading System for Middle School Chemistry Experiment Mar. 2021 – Jun. 2021

- Collected and annotated video data of chemistry experiments and trained a YOLO model to detect apparatuses
- Applied U-Net model, contour detection algorithm, corrosion algorithm and clustering algorithm to measure pH values of pH testing papers in videos
- Utilized model output data to implement the grading program, connected the program to GUI software and transplanted the software to recording devices with Redis database

Chinese Research Institute of Land and Big Data | Outsourcing Project Sichuan, China

Surveillance Video Detection of Safety Helmets Dec. 2019 – Jul. 2020

- Matched with a company called Pactera as an algorithm engineer
- Utilized Faster RCNN to detect helmets and heads and recalculated scores of proposals in consecutive frames to boost accuracy
- Worked with other software developers in the company to integrate a software to inform the supervisor of any people not wearing helmets

SELECTED COURSE PROJECTS

Optimization of MBGD | Programming Massively Parallel Processors with CUDA, NU Jan. 2022 – Mar. 2022

- Implemented Mini-Batch Gradient Descent with CUDA programming in C, and optimize MBGD algorithm by applying two kinds of sample trimming

Explore Telco Customer Churn with Decision Tree | Machine Learning: FAA, NU Sept. 2021 – Dec. 2021

- Used decision tree to predict churn of telco customers and compared the performance of four different ensemble learning methods

Analysis of CPD Data | Special Topics in CS : Data Science Seminar, NU Sept. 2021 – Dec. 2021

- Analyzed and visualized allegation data of Chicago Police Department with Tableau, OpenRefine, ObservableHQ, Apache TinkerPop and Gephi

Video Fusion in Mixed Reality | Course Design for Information Processing, SWJTU Sept. 2020 – Jan. 2021

- Captured video stream of a real table and projected it onto virtual table created with Unity3D to interact with users

PUBLICATIONS & PATENTS

- Jin Huang. **Jiren Li**. Jianwei Li. Jianbo Li. Zhihong Zhang. Siyuan Zhang, 2020. "A Land Use Type Recognition Method based on U-Net Neural Network" CN Patent Application CN202011236409.5

HONORS & AWARDS

- 1st Class Scholarship for Academic Excellence, SWJTU 2020
- 2nd Class Prize in Sichuan Province, China Undergraduate Mathematical Contest in Modeling 2019
- 1st Class Scholarship for Academic Excellence, SWJTU 2019
- 2nd Class Prize, Programming Contest of Lan Qiao Cup 2019
- 1st Class Scholarship for Academic Excellence, SWJTU 2018

SKILLS

- **Programming Languages & Tools:** C/C++, Python, Java, Linux, SQL Server, TensorFlow, Mitsuba Renderer