

LUOHAO XU

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EDUCATION

Imperial College London

Oct 2022 - Oct 2023

MSc Environmental Data Science and Machine Learning

Relevant Courses: Big Data Analytics, Advanced Programming, Deep Learning, Applied Data Science, Machine Learning, Computational Mathematics

University of Glasgow

Sep 2018 - Jun 2022

BEng Electronic and Electrical Engineering with Information Engineering

GPA: 3.77/4.0

Degree Class: with Honours of the First Class (1:1)

PROFESSIONAL EXPERIENCE

Development of Deep Learning Based Signal Modulation Mode Recognition Model

Jul - Sep 2021

Chengdu Dianzhen Technology Co.Ltd. Software Developer Intern

Chengdu, China

- Design a deep learning model for modulation recognition of communication signals
- Sampled and generated dataset from 24 modulation modes, 26 SNR levels, and IQ dual channels.
- Trained and tuned ResNet model with residual units for modulation mode recognition using TensorFlow
- Preprocessed real waveform files using SciPy library for resampling, amplitude stretching, etc. and fine-tuned the trained model
- Developed GUI using Tkinter library in Python to predict modulation mode by inputting waveform files
- Model achieved 85% accuracy on simulated signal dataset (SNR > 0dB), and 91% on real signals after fine-tuning, with over 50% of modulation modes recognized at 98%+ accuracy

RELEVANT PROJECTS

Personal Website Development

June - Aug 2023

- Built interactive navbar, project cards, dark/light mode, language selection etc. using React
- Deployed project on AWS Amplify server

NYC Crime Rate Prediction Model Based on ML and Agent-Based Modeling

Jul - Sep 2023

- Cleaned and analyzed 100+ years of public NYC crime data using Pandas, and performed EDA, data visualization to find correlations and trends
- Trained CNN-LSTM, Random Forest models to predict different crime rates by dimensions of time-series, geospatial, weather etc.
- Built agent-based model using Mesa library to simulate urban crime rates, integrated trained ML models to assist agent to make decision
- Developed interactive Folium map to visualize predicted crime hotspots and potential perpetrator profiles

TECHNICAL SKILLS

- Preferred programming languages: JavaScript, HTML, CSS, Python, Java
- Experienced with Git, React, Node.js
- Skilled in Pandas, Matplotlib, Seaborn for data visualization, cleaning, analysis
- Familiar with TensorFlow, PyTorch, scikit-learn for ML/DL
- Interests: Video editing skills with PR software ([200k+ YouTube views](#))