Junyao DONG

Telephone: + 86 15360456326 E-mail: 1071307515@qq.com

EDUCATION

Guangdong University of Foreign Studies-- Bachelor of Engineering **September 2017 - June 2021**
Major: Computer Science **GPA:** 84.35/100 **Rank**: Top 30%

University of Manchester (Exchange in Year 3) **September 2019 – May 2020**
Major: Computer Science **GPA:** 89/100 **Rank**: Top 10%

PUBLICATIONS

[1] Wang, P., Ming, T., Wang, Y., & **Dong, J**. (2021). Automatic Car Motion Prediction Based on the Hybrid ResNet Model. In 2021 International Conference on Artificial Intelligence and Industrial Design (AIID 2021).

[2] Dong, J. (2021). Object Detection based on Deep Learning. In 2021 International Conference on Artificial Intelligence, Virtual Reality and Visualization (AIVRV 2021).

[3] Liu, J., Li, J., Yu, Y., Zhou, Y., **Dong, J**., & Liang, M. (2021). Crude Oil Price Analysis and Prediction based on Wavelet Decomposition. In Decision and Statistics.

RESEARCH EXPERIENCE

Crude Oil Price Forecasting, Guangdong University of Foreign Studies **June 2020 - February 2021**

- Conducted an in-depth wavelet analysis on a comprehensive dataset of crude oil prices to unveil hidden patterns, which effectively decomposed it into distinctive low-frequency and high-frequency components.
- Developed a novel hybrid forecasting model, the ARIMA-LSTM model based on wavelet decomposition, tailored to address the complex, non-linear, and non-stationary nature of crude oil price dynamics.
- Demonstrated expertise in applying the ARIMA model to the low-frequency data series, allowing for precise prediction of long-term trends in crude oil prices, with practical implications for national economic strategies and enterprise operations.
- Applied cutting-edge LSTM neural networks to model and predict high-frequency data sequences that captured intricate fluctuations and details in crude oil prices, which are crucial for informed decision-making in the global energy market.
- Contributed to the advancement of predictive modeling techniques, offering compelling empirical evidence that the proposed ARIMA-LSTM model outperforms standalone ARIMA, LSTM, as well as wavelet decomposition-ARIMA and Wavelet decomposition-LSTM models. This outcome signified its potential for enhancing international political strategies and positive effects for the global economy.

Autonomous Vehicle Trajectory Prediction, Momenta **January 2021 – December 2021**

- Developed a novel hybrid neural network, based on the ResNet model, which was designed to address the critical challenge of predicting trajectories for autonomous vehicles (AVs).
- Trained and fine-tuned the proposed hybrid neural network using framed data from a dataset provided by the ride-hailing giant, Lyft. This enabled precise predictions of AV trajectories and associated confidence levels.
- Achieved remarkable results, with the hybrid neural network demonstrating a notably low loss value of 23.25%, highlighting its superior performance in comparison to other neural network architectures.
- Contributed to advancing the field of AV technology, with a focus on critical engineering challenges related to traffic agent movement predictions, encompassing vehicles, cyclists, and pedestrians.
- Applied machine learning algorithms and neural network expertise to enhance the reliability and safety of AVs, aligning with the transformative potential of AVs in redefining the future of transportation.

WORK/INTERNSHIP EXPERIENCE

Baidu Inc. **May 2021 - August 2023**
Position: Backend Development Engineer **(Fulltime)** , Cloud Service and Multimedia Department
Project 1: Live streaming server cluster (https://cloud.baidu.com/product/lss.html)

- Developed and maintained the distributed live streaming server clusters based on Simple Realtime Server(SRS) and Baidu Remote Procedure Call(BRPC)
- Spearheaded the development and maintenance of transcoding solutions for H.264 and H.265 formats,

incorporating Baidu's proprietary audio and video coding technology.

- Developed an innovative and versatile screenshot feature capable of generating PNG, JPG, and GIF image formats, while also implementing content analysis for sensitive information detection during screenshot captures.
- Led the development efforts to enable video recording and cloud storage support for MP4, FLV, and M3U8 video formats, enhancing media handling capabilities.
- Managed and customized live stream processes for diverse clients, including TikTok, Huya, and Pendulous, encompassing tasks such as screenshots, recording, and transcoding. Acknowledged as the second-largest partner of TikTok Live, following Alibaba Cloud, for seamless live stream support and processing.

Project 2: Online Livecast Studio (https://cloud.baidu.com/product/lcps.html)

- Conducted advanced modifications and enhancements to the Multimedia framework (FFmpeg) streaming media framework, enabling seamless integration of features such as transitions, watermarks, picture-in-picture, and subtitles for enriched video content.
- Leveraged Python and Go programming languages to establish a robust backend system, facilitating efficient scheduling and management of audio and video rendering tasks to support various business requirements.
- Successfully interfaced with Baidu's proprietary real-time communication framework (BRTC), augmenting communication capabilities and further expanding the scope of real-time interactions.
- Pioneered the development of dynamic features including scoreboards, timers, and artificial intelligence-driven goal detection, significantly enhancing the quality and engagement of live event broadcasts.
- Delivered exceptional live broadcasting services for prestigious clients such as CCTV, Sichuan Sports Bureau, Guizhou Village Super League, and Village BA. Established strategic partnerships with Pixellot, an Israeli outdoor video capture technology company, to venture into the international sports event live broadcast market. This will be a key contributor to global expansion efforts in this market.

Momenta, Beijing Chusudu Technology Co., Ltd **December 2020 - May 2021**

Position: Backend Development Engineer Autonomous Driving System Department (Internship)

Sensor Data Statistics:

- Proficiently parsed and analyzed a vehicle Robot Operating System Framework (ROS) data, enabling comprehensive data interpretation and utilization.
- Spearheaded the development of a user-friendly data dashboard tailored for data screening and troubleshooting of vehicle indicators, enhancing efficiencies in data-driven decision-making.

Code Quality Inspection Platform:

- Designed and established a robust automated code quality inspection platform exclusively tailored for C and C++ projects, designed to proficiently detect code specification deviations and memory leaks. This innovation ensures code reliability.
- Successfully deployed the code quality inspection platform across multiple departments within the organization in May 2021, facilitating streamlined code assessment and optimization efforts on a company-wide basis.

HONORS & AWARDS

- Open-Source projects on Github (More than 50 stars) -- (Project link: https://github.com/AmuroEita/Live-streaming-app)
- Github AI agent project member: (Project link: https://github.com/Org-Y (not open source)
- Kaggle Data Competition Silver Medal (49/1200): (Project link: https://www.kaggle.com/competitions/hubmap-kidney-segmentation)
- Computer software copyright certificate in 2021 (Registration Number: 2021SR1592012)
- 2020 National College Student Modeling Competition of Mathematics Second Prize (10%)
- 2020 National College Student Network Design Competition Second Prize (10%)
- 2020 Scholarship for Outstanding Visiting Students

COMPUTER SKILLS

- Programming: C/C++, Python
- Others: RPC, Git, Linux, GDB, and other framework on backend development
- Data Processing: Hadoop, Hive

LANGUAGE SKILLS

- IELTS Score: 6.5 (Listening: 6.5, Reading: 7, Speaking: 5.5, Writing: 6.0)