Minxing LIU

E-mail: minxingliu8@gmail.com

Education Background

Linköping University ***Oct.2023 - Now Sweden***

Ph.D. in Computer Science

Syracuse University ***Aug.2018 - May.2020 U.S.***

M.S. in Computer Science **(GPA: 3.73/4.0)**

Hefei University of Technology (HFUT) ***Sept.2014 - Jun.2018 China***

B.Eng. in Information Management and Information System (GPA: 3.36/4.3 **Major GPA: 3.68/4.3**)

Honors: National Scholarship (1/99); HFUT Outstanding Graduates (9/104); HFUT Merit Student (3/333)

Publications

To be announced.

Work Experiences

China Railway Information Technology Group Co. ***Apr.2021 – Sep.2023 China***

Cybersecurity Engineer & Data Scientist

- Normalize threat alert messages in China Railway Information System, introduce an attack detection method based on Hidden Markov Model (HMM) to help build China Railway Cyberspace Situation Awareness System (CRCSAS)
- Make real-time prediction of passenger flow and ticket-purchasing trend in China Railway Network using Long Short-Term Memory (LSTM) model
- Help build China Railway Integrated Information Network and transform network structure for China Railway Express Co.,Ltd., focusing on network security isolation

Project Experiences

Course Project: User Recommendation with Priority on Social Media ***Oct.2019 - Dec.2019 U.S.***

Individual Project

- Use the *Python* library *NetworkX* and *Community* to build and visualize an ego network based on the given data set, show underlying social communities in this densely clustered network
- Analyze the interaction and similar behaviors among users on Facebook platform, use a *chain rule* to give priorities of recommendations between any two users in this social network structure

Course Project: A Deep Neural Network for Driving Style Recognition ***Jan.2019 - Apr.2019 U.S.***

Group Project (team member)

- Use movement features (speed, difference of speed, acceleration, difference of acceleration and angular speed) extracted from GPS data to study different drivers' driving styles (biometric) and classify them
- Apply both supervised and unsupervised feature learning within one framework, which uses output of a Recurrent Neural Network (RNN) as a hidden layer

Software Project: Source Code Publisher Client ***Jan.2019 - Apr.2019 U.S.***
Individual Project

- Use regular expression to match source code files in a directory tree, convert them into *html* files and display them with specific applications
- Record file dependencies with web links in constructed web pages, allow users to select converted files to display in the Client GUI and decide to show comments, function bodies and class scope or not
- Implement a communication channel, develop a server to accept request messages and route them to the appropriate publication facilities, use the *C++/CLI* translator to connect the Client GUI to the Code Publisher Server

University Students Innovation and Entrepreneurship Competition: Driver Fatigue State Alarm System Based on Eye Tracking Technology (Outstanding Certificate of Completion, Top 20%) ***May.2016 - Apr.2017 China***
Group Project (team member) Advisor: Prof. Cuiqing JIANG

- Preprocess images by dint of Matlab's functions like Gaussian Smoothing and Histogram Equalization
- Choose PERCLOS from three criteria (NodFreq, EBA and PERCLOS) as the fatigue evaluation method
- Make a comparison of PERCLOS's three parameters, P70, P80 and EM through experiments and calculation, and select P80 to be the fatigue threshold
- Code for human facial recognition with team members, using *C++ OpenCV*
- Code for police siren triggering and playing module and combine them with eye-activity recognition and analysis module

Lab Project: Residential Electricity Consumption's Analysis & Forecast and Study for Recommended Strategies of Electricity Company's Personalized Pricing & Service ***Jul.2017 - Aug.2017 China***
Group Project (team member) Advisor: Prof. Shanlin YANG

- Use K-means clustering algorithm to classify different kinds of electricity users, choose Maximum Likelihood method as the evaluation indicator to find most proper cluster centers
- Utilize Echarts to draw graphs (especially Sankey diagram) to show the electricity consumption in different times, which is used to make the electricity pricing standards

Internship

IFLYTEK CO., LTD. ***Nov. 2017 - Apr. 2018 China***
Software Developer and Test Engineer of Technology Center

- Create test cases for the In-Vehicle Voice Assistant System and help test deep Convolutional Neural Network (CNN) in the speech-recognition integrated environment
- Carry out performance tests on car information system, monitor and analyze CPU and internal storage's service data, submit test reports
- Write log files of abnormal operations in car information system, assist research staff to fix vulnerabilities

Skills & Research Interests

Computer skills: Python, C++, Java, C, C#, R, SQL, JavaScript, CSS, html; Visual Studio, VS Code, MyEclipse, Xcode, Jupyter Notebook, R-Studio; Pytorch, TensorFlow, Keras, Nodejs, Unity

Languages: English (fluent), Chinese (native), Swedish (basic)

Research Interests:

- Adversarial Machine Learning: Hacking generative models (Diffusion, Vision-language Models) to defend privacy leak.
- Computer Vision: Object detection, tracking and identification in videos; Video captioning & systhesis.
- Natural Language Processing: Large language models application.