SIRUI DING

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Undergrad of Wuhan University, Member of Autokeras Team

EDUCATION

Wuhan University *September 2016 - June 2020(expected)*
Junior Undergraduate Overall GPA: **3.87/4.0**
School of Computer Science

TECHNICAL STRENGTHS

Computer Languages C/C++, MATLAB, Python, Java
Software & Tools HTML, LaTeX, Excel, Dreamweaver, Pycharm

RESEARCH EXPERIENCE

Wuhan University, School of Computer Science June 2018 - Present
Research Assistant *Supervisor:Zhiyong Yuan*

· Lead a research team successfully to apply the funding of 10000RMB for *EEG-based Sleep Quality Analysis and System* which is a National Undergraduate Innovative Program.
· Use the Deep Learning method e.g. LSTM and CNN to analyse the sleep stage from the EEG data.
· Published two research papers about EEG signal and mobile system using machine learning method.

Texas A&M University, Dpt. of Computer Science&Engineering Mar 2019 - Present
Research Assistant *Supervisor:Xia "Ben" Hu*

· Make contributions to Autokeras. Find&fix bugs, implement some essential blocks.
· Conduct independent research work on Interpretable&Automated machine learning.

WORK EXPERIENCE

iSoftstone Inc. Summer 2018, Wuhan, China
Software Development Intern

Data Analytics at Texas A&M(DATA) Lab Summer 2019, College Station, US
Research and Software Development Intern

PUBLICATIONS

•***Third Author*** "A Novel EEG Sleep Staging Method for Wearable Devices Based on Amplitude-time Mapping," *ICARM*, 2019. Osaka, Japan

•***First Author*** "Cascaded Convolutional Neural Network with Attention Mechanism for Mobile EEG-based Driver Drowsiness Detection System," *BIBM, 2019* Submitted

PROJECTS

Autokeras Mar 2019 - Present
Research&Industrial Program, ***6000+ stars on Github*** *Supervisor:Prof.Xia Hu*

· Implement Dense Block with different kinds etc. BN, Dropout, ReLU and Dense chosen by hp.
· Implement ImageAugment Block with various augment methods and merged it into master branch.
· Implement the pretraining part etc.word2vec, glove, fasttext of Embedding Block.

· Implement a stream-data version of Text2Ngram(transform text into vector) for text preprocessor.
· Implement LightGBMClassifier and LightGBMRegressor as the hyperblock for tabular data pipeline.
· Improve the code quality of Autokeras using codacy. Find and fix some bugs meanwhile.
· Get guidance directly from Haifeng(au. of Autokeras) and comments from Francois(au. of Keras).
· Test the AutoKeras's performance on different datasets on the server.

Mobile EEG-based Driver Drowsiness Detection System September 2018 - December 2018
Research Program, ***Outputs a first-author paper*** *Supervisor:Prof.Zhiyong Yuan*

· Design the architecture of the whole mobile detection system with front and back end and algorithm.
· Implement and run all benchmarks of current methods for EEG analysis including deep learning and feature-based machine learning methods.
· Design and implement a novel neural network which achieves an accuracy of 97.09% and model size reduced by nearly 66% which is more suitable for a embedded device.

Amplitude-time Mapping Method for EEG Sleep Staging September 2018 - December 2018
Research Program, ***Outputs a third-author paper*** *Supervisor:Prof.Zhiyong Yuan*

· Help with paper survey and raw EEG signal pre-processing.
· Implement the feature engineering include EEG amplitude axis mapping and time axis mapping.
· Help implement the multi-level sleep staging model with weighted support vector machine (WSVM).

Optimal Management of Electric Vehicle Charging September 2018 - December 2018
Contest Program, ***Won the second-prize in competition*** *Independent team work*

· Analyse, pre-processing and visualize the raw data of electric vehicle using MATLAB.
· Build the model with particle swarm algorithm to optimize the management of e-car charging.
· Write a work paper *Electric vehicle charging and discharging optimization management* for the contest.
· Rank Top15% of 1087 teams participated(EMCM,11th session) and won a bonus of 2500RMB.

HONORS & AWARDS

Second Prize for The 11th EMCM Competition, Top 15% 2018 Spring

Third-prize Scholarship in Wuhan University 2018 Fall

Outstanding Student Prize of WHU, Top 30/300 2018 Fall

Gold Medal for National Green Computing Competition, Top 1/300 2018 Winter

Qualification Certificate of Software Designer 2018 Winter

Championship for Microsoft Student Hackthon 2019 Spring

First Prize for National Undergraduate IoT Contest, Hubei division. 2019 Summer

TEACHING & SERVICES

Fall 2018, Computer Design and Organization Wuhan University, Teaching Assistant

Spring 2018, Pattern recognition Wuhan University, Teaching Assistant

SPONSOR & FUNDING

National Student Research Program with RMB10000 funded Ministry of Education