

# Shuyue Jia

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## EDUCATION

City University of Hong Kong, China May 2021 - Present

- M.Phil., Computer Science Major, GPA: 3.50/4.0
- Supervisor: Dr. Shiqi Wang, Research area: Image Quality Assessment and Perceptual Optimization
- Selected coursework: Big Data Algorithms and Techniques (A), Machine Learning Algorithms and Applications (B)

Northeast Electric Power University, China Sep 2016 - Jun 2020

- B.Eng., Intelligence Science and Technology Major, GPA: 80.26/100
- Supervisor: Prof. Yimin Hou and Dr. Jinglei Lv, Research area: EEG Signals Processing based on DL Methods

University of California, Irvine, CA, USA Jul - Sep 2017

- Summer School, Computer Science, GPA: 4.0/4.0
- Selected coursework: Computer Systems and Architecture (A+), University Writing and Communication (Pass)

## RESEARCH

- Deep Feature Mining via Attention-based BiLSTM-GCN for Human Motor Imagery Recognition. [Paper][Code]  
Yimin Hou, **Shuyue Jia (Corresponding Author)**, Xiangmin Lun, Shu Zhang, Jinglei Lv.  
*Frontiers in Bioengineering and Biotechnology*, 2021. (Accepted)
- A Novel Approach of Decoding EEG Four-Class Motor Imagery Tasks via Scout ESI and CNN. [Paper] [Code]  
Yimin Hou, Lu Zhou, **Shuyue Jia**, and Xiangmin Lun.  
*Journal of Neural Engineering*, 2020; 17(1):016048. (Published)
- GCNs-Net: A Graph Convolutional Neural Network Approach for Decoding Time-resolved EEG Motor Imagery Signals. [Paper] [Spectral-GCN-Presentation] [Dynamic-GCN-Presentation] [Code]  
Yimin Hou, **Shuyue Jia (Corresponding Author)**, Xiangmin Lun, Shu Zhang, Jinglei Lv.  
*arXiv preprint arXiv:2006.08924*, 2022 (Rejected by IEEE TNSRE; To be submitted).
- Improving Performance: a Collaborative Strategy for the Multi-data Fusion of Electronic Nose and Hyperspectral to Track the Quality Difference of Rice. [Paper]  
Yan Shi, Hangcheng Yuan, Chenao Xiong, **Shuyue Jia**, Jingjing Liu, and Hong Men.  
*Sensors & Actuators: B. Chemical*, 2021; 129546. (Published)
- Origin Traceability of Rice based on an Electronic Nose Coupled with a Feature Reduction Strategy. [Paper]  
Yan Shi, Xiaofei Jia, Hangcheng Yuan, **Shuyue Jia**, Jingjing Liu, and Hong Men.  
*Measurement Science and Technology*, 2020; 32(2):025107. (Published)
- Attention-based Graph ResNet for Motor Intent Detection from Raw EEG signals. [Paper][Code]  
**Shuyue Jia (Corresponding Author)**, Yimin Hou, Yan Shi, and Yang Li.  
*arXiv preprint arXiv:2007.13484*, 2022. (Rejected by MICCAI 2020; To be submitted in 2022)

## EXPERIENCE

City University of Hong Kong, China **Part-time Research Assistant** Sep 2021 - April 2022

- Investigated the topic of Deep Learning models compression and lightweight, and the deployment on mobile devices.
- Funded by my mentor (Dr. Shiqi Wang) to cover tuition fees and living expenses in HK.

Tencent Video, Beijing, China **Recommender System Intern** Oct - Dec 2020

- Assisted with the unified architecture regarding the *Rerank* Module for Tencent Video Recommendation System.
- Conducted research on the Dynamic Graph Convolutional Neural Networks (DGCN) Survey and learned Reinforcement Learning models.

Philips Research, Shanghai, China

NLP Research Intern

Jul - Oct 2020

- Medical Concept Mapping: three levels  $\rightarrow$  BPE and FMM & BMM Algorithms for Sub-words (Syntax-level), Word Vector Cosine Similarity (Semantics-level), and Knowledge Graph (Pragmatics-level).
- Medical NER: compared the performances of different models  $\rightarrow$  CRF++, Character-level BiLSTM + CRF, Character-level BiLSTM + Word-level BiLSTM / CNNs + CRF, and deployed the models using Flask and Docker as web apps. Codes are available here and the Docker Images are available on the Docker Hub.
- Dynamic Webs Crawling: learned and crawled 620,000 words from NSTL using Python parallel package threading and other tricks to prevent Anti-reptile. (Mentor: Dr. Shuang Zhou)

Tsinghua University, Beijing, China

NLP Summer Intern

Jun - Aug 2019

- Natural Language Processing (NLP) Interned at State Key Laboratory of Intelligent Technology and Systems (Prof. Xiaoyan Zhu Team), Tsinghua University, China.
- I was in a team that was responsible for building a salesman training system, which was a piece of insurance dialogue systems. During intern, I led the effort to create a Chinese Chat Title Named Entity Recognition (NER) via the BERT-BiLSTM-CRF model, and then matched the formal name with the recognized title through rules. NER Dataset: 30,676 samples, 96.73% accuracy on 550 samples.
- I also assisted in testing the sales training review system, and integrated salesman's dialogue according to different difficulty levels, in verifying the reliability of the system.

## SELECTED PROJECTS

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**EEG-DL: A Deep Learning library for EEG Tasks (Signals) Classification** [Code] May 2020

- EEG-DL is a Deep Learning (DL) library written by TensorFlow for EEG Tasks (Signals) Classification.
- Implemented 20+ popular algorithms including DNN, CNN, RNN-based, GCN with hands-on tutorials.
- Finished writing *three papers* based on this project as shown in my *Publications*.
- Comprehensive codes for EEG signals processing and classification *research*, and got 300+ GitHub stars.

**Shipwreck Sonar Image Segmentation based on Entropy Method** [Code] Jun - Sep 2018

- Pre-processed sonar images to enhance the contrast between the hull and reverberation area, which consists of discrete cosine filtering (DCT) $\rightarrow$ edge detection (Roberts Operator) $\rightarrow$ threshold segmentation via a one-dimensional histogram to locate the ship $\rightarrow$ morphological expansion by tapered concentric rings through Matlab.
- The proposed method improved segmentation accuracy (86%+) compared with that without the pre-processed stage (no more than 80%) on dozens of sonar images.

## AWARDS

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2021 Standard Chartered Hong Kong Marathon, Half Marathon, Placed <i>318 / 6000</i> (01:38:14)	Oct 2021
2019 Interdisciplinary Contest In Modeling (United States) <i>Honorable Mention</i>	Apr 2019
2018 Mathematical Contest In Modeling (Jilin, China) <i>First Prize</i>	Aug 2018
2018 Interdisciplinary Contest In Modeling (United States) <i>Successful Participant</i>	Apr 2018
2018 NEEPU Outstanding Student Leader	Oct 2018
Innovation Scholarship of NEEPU <i>Winner</i>	2018/2019
Academic Excellence Scholarship of NEEPU <i>Third Prize</i>	2017/2018/2019/2020
Jilin City International Marathon, Half Marathon, Placed <i>148 / 5000</i> (01:47:36)	Jun 2017
2015 National High School Math League <i>Second Prize</i>	Sep 2015
The 32 <sup>nd</sup> Chinese Physics Olympiad <i>Third Prize</i>	Oct 2015

## PROFESSIONAL SKILLS

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**Languages:** Proficient in Python and Matlab; Familiar with C++/C/Embedded C, R, and JavaScript

**Libraries:** TensorFlow (Preferred), PyTorch

**Other frequently-used tools:** Git, Vim, Markdown, Shell, L<sup>A</sup>T<sub>E</sub>X, Docker, K8s

**English Language:** Fluent in English, CET-6 581, CET-4 577, Duolingo 110