

# Shuyue Jia

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## EDUCATION

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City University of Hong Kong (CityU), Hong Kong May 2021 - Present

- Master of Philosophy Computer Science
- Supervisor: Dr. Shiqi Wang, Research area: Image Quality Assessment

Northeast Electric Power University (NEEPU), Jilin, China Sep 2016 - Jun 2020

- Bachelor of Engineering / Intelligence Science and Technology Major, GPA - 80.26/100
- Supervisor: Prof. Yimin Hou, Research area: Deep Learning
- Thesis: Brain-Computer Interface Signals' Classification and Its Applications based on Deep Learning Methods

University of California, Irvine (UC Irvine), CA, United States Jul - Sep 2017

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

## EXPERIENCE

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Tencent Technology Inc., Beijing, China **RS Research Intern** Oct - Dec 2020

- Assist with the unified architecture w.r.t. the *Rerank* Module for Tencent Video Recommendation System (RS).
- 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 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.

Tsinghua University, Beijing, China **NLP Summer Intern** Jun - Aug 2019

- Natural Language Processing (NLP) Intern at State Key Laboratory of Intelligent Technology and Systems, 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.

## PUBLICATIONS

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- 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.
- 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.

- 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.
- GCNs-Net: A Graph Convolutional Neural Network Approach for Decoding Time-resolved EEG Motor Imagery Signals. [Paper] [Spectral-GCN-Presentation] [Dynamic-GCN-Presentation] [Code]  
Xiangmin Lun, **Shuyue Jia (Corresponding Author)**, Yimin Hou, Yan Shi, and Yang Li.  
*arXiv preprint arXiv:2006.08924*, 2021. (Under Review)
- Deep Feature Mining via Attention-based BiLSTM-GCN for Human Motor Imagery Recognition. [Paper][Code]  
Yimin Hou, **Shuyue Jia (Corresponding Author)**, Xiangmin Lun, Yan Shi, and Yang Li.  
*arXiv preprint arXiv:2005.00777*, 2021. (Under Review)
- 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*, 2021. (Rejected by MICCAI 2020)

## SELECTED PROJECTS

- 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. (*Undergraduate graduation project*)
  - 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 100+ 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)→edge detection (Roberts Operator)→threshold segmentation via a one-dimensional histogram to locate the ship→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.
- Third China Data Mining Competition, Butterfly Recognition** [Website] [Code] Oct 2017 - May 2018
- Successfully implemented YOLO-V2 and Faster-RCNN object detection algorithms under Windows & Ubuntu OS using the official butterfly dataset.
  - Used affine transformation, noise addition, contrast enhancement, rotation, symmetry changing, and other methods to extend the dataset.
  - YOLO-V2 Results (Team A106): 71.42% Averaged IoU, and unsatisfactory classification accuracy.

## AWARDS

2019 Interdisciplinary Contest In Modeling (United States)	<b>Honorable Mention</b>	Apr 2019
2018 Mathematical Contest In Modeling (Jilin, China)	<b>First Prize</b>	Aug 2018
2018 Interdisciplinary Contest In Modeling (United States)	<b>Successful Participant</b>	Apr 2018
2018 NEEPU Outstanding Student Leader		Oct 2018
Innovation Scholarship of NEEPU	<b>Winner</b>	2018/2019
Academic Excellence Scholarship of NEEPU	<b>Third Prize</b>	2017/2018/2019/2020
Jilin City International Marathon, Half Marathon, Placed 148 / 5000		Jun 2017
Student Member of IEEE, ACM, and CCF		2019/2020/2021
2015 National High School Math League	<b>Second Prize</b>	Sep 2015
The 32 <sup>nd</sup> Chinese Physics Olympiad	<b>Third Prize</b>	Oct 2015

## PROFESSIONAL SKILLS

**Languages:** Proficient in Python and Matlab; Familiar with 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