Shuyue Jia

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EDUCATION

City University of Hong Kong, 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, Jilin, 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

- No-reference Image Quality Assessment via Non-local Modeling.
  Shuyue Jia, Baoliang Chen, Dingquan Li, Shiqi Wang.
  To be submitted.

- 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. (Published)

- 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 GNN Presentation] [Dynamic GNN 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)

EXPERIENCE

City University of Hong Kong — **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	**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	**NLP Research Intern**	Jul - Oct 2020

- Medical Concept Mapping: three levels → 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 → 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	**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

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 contract 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.

Awards

2021 Standard Chartered Hong Kong Marathon, Half Marathon, Placed *318 / 6000* (01:38:14)	Oct 2021
2019 Interdisciplinary Contest In Modeling, USA [Thesis] ***Honorable Mention***	Apr 2019
2018 Mathematical Contest In Modeling, Jilin, China [Thesis (in Mandarin)] ***First Prize***	Aug 2018
2018 Interdisciplinary Contest In Modeling, USA [Thesis] ***Successful Participant***	Apr 2018
2018 NEEPU Outstanding Student Leader	Oct 2018
Innovation Scholarship of NEEPU ***Winner***	2018/2019
Academic Excellence Scholarship of NEEPU ***Third Prize***	2017/2018/2019/2020
Jilin City International Marathon, Half Marathon, Placed *148 / 5000* (01:47:36)	Jun 2017
3000-meter Steeplechase (The 45th NEEPU Games), The 7th Place	May 2017
The 32nd Chinese Physics Olympiad, China ***Third Prize***	Oct 2015
2015 National High School Math League, China ***Second Prize***	Sep 2015

Professional Skills

Languages: Proficient in Python and Matlab; Familiar with C++/C/Embedded C, R, and JavaScript
Libraries: TensorFlow, PyTorch
Other frequently-used tools: Git, Vim, Markdown, Shell, LaTeX, Docker, K8s
English Language: Fluent in English, CET-6 581, CET-4 577, Duolingo 110