Shuyue Jia (Bruce)

✉ brucejia@bu.edu ☎ +1 (213)-296-5422 GitHub Google Scholar Blog Personal Homepage

Contact Information

Address: Room C, 1/F, Tower 18, Parc Oasis, Yau Yat Tsuen, Kowloon Tong, Kowloon, Hong Kong SAR, China

Special Notice: Hong Kong SAR IANG Working VISA Holder (until May 2025)

Research Interests

I am a Ph.D. student working on AI Foundation Models, *e.g.*, Pre-trained Large Language Models (LLMs), Generative AI, and Computer Vision. My ultimate goal is to **develop safe, secure, responsible, and trustworthy AI systems**.

Education

Boston University, Boston, Massachusetts, USA — Starting Sept 2023

- Ph.D. in Computer Engineering, College of Engineering
- Supervisor: Prof. Wenchao Li
- Funding: Distinguished Computer Engineering Fellowship

City University of Hong Kong, Hong Kong SAR, China — May 2021 - June 2023

- M.Phil. in Computer Science, Dept. of Computer Science
- Supervisor: Prof. Shiqi Wang
- Expertise: Image Quality Assessment and Perceptual Optimization
- Thesis: No-reference Image Quality Assessment via Non-local Modeling
- Funding: Research Assistantship supported by Prof. Shiqi Wang

Northeast Electric Power University, Jilin, Jilin, China — Sept 2016 - Jun 2020

- B.Eng., Intelligence Science and Technology, School of Automation Engineering
- Supervisor: Prof. Yimin Hou, Prof. Jinglei Lv, and Prof. Yang Li
- Expertise: Neural Networks (Deep Learning)
- Thesis: Brain-computer Interface Signals Classification and Its Applications based on Deep Learning Methods
- Creator and Maintainer of GitHub repo **EEG-DL** (obtained 670+ stars and 180+ forks), a Deep Learning library written by TensorFlow for EEG Tasks (Signals) Classification

University of California, Irvine, Irvine, California, USA — Jul - Sept 2017

- Visiting Student, Summer School, Dept. of Computer Science
- Selected coursework: Computer Systems and Architecture (A+), University Writing and Communication (Pass)

Peer-reviewed Publications

Journal Publications

- Learning from Mixed Datasets: A Monotonic Image Quality Assessment Model [Paper] [Codes]
  Zhaopeng Feng, Keyang Zhang, **Shuyue Jia**, Baoliang Chen, Shiqi Wang *
  IET Electronics Letters

- GCNs-Net: A Graph Convolutional Neural Network Approach for Decoding Time-resolved EEG Motor Imagery Signals [Paper] [Codes] [Slides] [Survey]
  Shuyue Jia, Yimin Hou, Xiangmin Lun, Ziqian Hao, Yan Shi, Yang Li, Rui Zeng, Jinglei Lv *
  IEEE Transactions on Neural Networks and Learning Systems (IEEE T-NNLS)

- Deep Feature Mining via Attention-based BiLSTM-GCN for Human Motor Imagery Recognition
  Yimin Hou, **Shuyue Jia ***, Xiangmin Lun, Shu Zhang, Tao Chen, Fang Wang, Jinglei Lv [Paper] [Codes] [Slides]
  Frontiers in Bioengineering and Biotechnology

- Improving Performance: A Collaborative Strategy for the Multi-data Fusion of Electronic Nose and Hyperspectral to Track the Quality Difference of Rice [**E** Paper]
  Yan Shi, Hangcheng Yuan, Chenao Xiong, **Shuyue Jia**, Jingjing Liu, Hong Men *
  Sensors & Actuators: B. Chemical

- A Novel Approach of Decoding EEG Four-Class Motor Imagery Tasks via Scout ESI and CNN [Paper] [Codes]
  Yimin Hou, Lu Zhou *, **Shuyue Jia**, Xiangmin Lun
  Journal of Neural Engineering
  GitHub Repo obtained 130+ stars and 40+ forks

- 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, Hong Men *
  Measurement Science and Technology

Refereed Conference and Workshop Publications

- No-reference Image Quality Assessment via Non-local Dependency Modeling [Paper] [Codes] [Slides] [Poster]
  Shuyue Jia, Baoliang Chen, Dingquan Li, Shiqi Wang *
  IEEE 24^{th} *International Workshop on Multimedia Signal Processing (IEEE MMSP'22)* (Poster Presentation)

Thesis

- No-reference Image Quality Assessment via Non-local Modeling [Permanent Link]
  Shuyue Jia
  M.Phil. Thesis, City University of Hong Kong, May 2023.

Note:

1. Google Scholar Profile
2. * denotes the Corresponding Author.

Working Experience

City University of Hong Kong, Hong Kong **Research Assistant** Sept 2021 - April 2023

- Project: working on Image Quality Assessment (IQA) and Perceptual Optimization.
- Model Compression and Lightweight: researched the topic of deep learning model compression and its deployment on mobile devices.

Samsung Research, Beijing **Computer Vision Research Intern** May - Jun 2022

- Research Proposal: Temporally Consistent Instance Tracking for Video Panoptic Segmentation (VPS).
- Temporally consistent Instance Association: object high-level correspondence (instance embedding association) in consistency with the pixel low-level correspondence (optical flow).
- Generate Dense Mask: wrote scripts to generate dense masks by linear interpolation from the sparse masks.
  (Mentor: Dr. Hui Zhang)

Philips Research, Shanghai **NLP Research Intern** Jul - Oct 2020

- Medical Concept Mapping: three levels to map the query to a standard term → BPE and FMM & BMM algorithms for sub-words generation and matching (syntax-level), word vector cosine similarity (semantics-level), and knowledge graph (pragmatics-level).
- Medical Terms 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.
- Dynamic Webs Crawling: crawled 620,000 words from the NSTL via python parallel package threading and other tricks to prevent anti-reptile.
  (Mentor: Dr. Shuang Zhou)

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

- Chinese Chat Title Named Entity Recognition (NER): create a Chinese chat title NER via the BERT-BiLSTM-CRF model and then match the formal name with the recognized title through rules.
  (NER Dataset: 30,676 samples, 96.73% accuracy on 550 testing samples.)
- System Testing: 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.

Awards and Services

Mathematics and Physics Competitions

2019 Interdisciplinary Contest In Modeling, USA ***Honorable Mention*** [Thesis (English)] Apr 2019
2018 Mathematical Contest In Modeling, Jilin, China ***First Prize*** [Thesis (Chinese)] Aug 2018
2018 Interdisciplinary Contest In Modeling, USA ***Successful Participant*** [Thesis (English)] Apr 2018
The 32^{nd} Chinese Physics Olympiad (CPhO), China ***Third Prize*** Oct 2015
2015 National High School Math League, China ***Second Prize*** Sept 2015

Academic Services

Reviewer:

IEEE Transactions on Multimedia (T-MM)
IEEE Transactions on Circuits and Systems for Video Technology (T-CSVT)
IEEE Journal of Biomedical and Health Informatics
Analytical Methods
Postharvest Biology and Technology

Student Member:

Institute of Electrical and Electronics Engineers (IEEE)
Association for Computing Machinery (ACM)
ACM Special Interest Group on Artificial Intelligence (SIGAI)

ACM Special Interest Group on Multimedia (SIGMM)

Association for the Advancement of Artificial Intelligence (AAAI)

Association for Computational Linguistics (ACL)

American Association for the Advancement of Science (AAAS)

Selected Awards

Innovation Scholarship, Northeast Electric Power University	2018, 2019
Excellent Student Scholarship, Northeast Electric Power University	2016 - 2020
Outstanding Student Leader, Northeast Electric Power University	2017 - 2018

Sports Competitions

CityU Top 5 Runner, City University of Hong Kong ***The*** 1^{st} ***Place***	Oct 2021
2021 Standard Chartered Hong Kong Marathon, Half Marathon ***Rank 318 / 6000*** **(01:38:14)**	Oct 2021
2017 National Marathon Championships (Jilin City Station), Half Marathon ***Rank 148 / 5000*** **(01:47:36)**	Jun 2017
Outstanding Athlete, The 45^{th} NEEPU Games, Northeast Electric Power University	May 2017
3000-meter Steeplechase, The 45^{th} NEEPU Games, Northeast Electric Power University ***The*** 7^{th} ***Place***	May 2017

Professional Skills

Coding: Python, C, Embedded C, C++, MATLAB, R, Mathematica, HTML

Library: TensorFlow, PyTorch, Scikit-learn

Tools: Git, SVN, Unix basics/shell (Zsh/Bash), Vim, Markdown, LaTeX, Docker, K8s

Hardware: NVIDIA Jetson Nano (Ubuntu), Raspberry Pi (Raspbian OS), 80C52 Microcontroller (Embedded C)

Hobby: Photography, Hiking, Mountain Climbing, Soccer, Skateboarding, Cycling, Coding, Marathon

Language: English (Working Proficiency), Mandarin (Native Speaker)