Jiexing Liu

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Kangyuan, Yunnan University of Finance and Economics, Wuhua District, Kunming, Yunnan, China

EDUCATION BACKGROUND

2019.09-2021.04   **The University of Manchester, UK**   **Advanced Computer Science, MSc**

- GPA: PGT Taught Average: 60 (2:1)   WES weighted GPA:3.3/4.0
- Core courses: Foundations of Machine Learning, Agile and Test-Driven Development, Modeling and Visualization of High-Dimensional Data, Principles of Digital Biology, Software Engineering Concepts in Practice, Introduction to Health Informatics

2014.09-2018.07   **Beijing University of Technology, China**   **Computer Science and Technology, B.E.**

- GPA: 3.23/4.0
- Highlights: Got A in the courses of Calculus (Engineering), Experiments of Digital Logic, Physics Experiments (Engineering), Assemble Language Programming, Algebraical Structure and Symbolic Logic, Course Design of Principles of Computer Organization, Experiments of Microcomputer Interface
- **Honor & Award**:

  2018   The Excellent Graduate of Beijing City

  2018 & 2017 & 2016   Scholarship of the Faculty of Information Technology

  2017 & 2016   Scholarship of Beijing University of Technology

  2016   The 7th place in ACM contest

  2016   The 4th place in the Math Modeling Competition of Beijing University of Technology

RESEARCH EXPERIENCES

2023.09-present   **Online Learning Project on AI for Medicine**   **Kunming, China**

- Learn about diagnose diseases from X-rays and 3D MRI brain images.
- Estimate treatment effects on patients using data from randomized trials.
- Predict patient survival rates more accurately using tree-based models.
- Automate the task of labeling medical datasets using NLP.

2023.06-2023.12   Online-based Project on Computer Vision   Voluntary Research Assistant   Kunming, China

Supervisor: Pro.Yan Da, associate professor from the University of Alabama at Birmingham (UAB)

- Read and collated extensively on literature related to multi-modal neural networks to perform presentations and discussions in regular meetings.
- Researched models, including CLIP and GLIP; assisted in performing GLIP model training on A100 GPU.

2022.01-2023.09   Automatic Measurement System Development for Processed Product in Industrial Manufacture   Research Assistant   Kunming, China

- Collected images and videos regarding different materials like intermediate products in industrial production; completed image preprocessing of nearly 1000 pictures on Python, involving resizing, gray processing, gaussian blur, hough transform, and so on.
- Utilized the deep learning algorithm -- HED (Holistically-Nested Edge Detection) for edge processing, instead of traditional image processing algorithms like Canny edge detection.
- Explored and implemented deep learning models, such as CASENet, DeepEdge, and CEDN, in edge detection.
- Participated in the high-performance computing (HPC) platform construction, involving the server, workstations, and GPU.

2020.01-2021.04   **In-depth Research on Clustering Algorithm**   **Core Researcher   Manchester, UK**

- Referred to and sorted out more than 40 pieces of literature on the clustering algorithm.
- Analyzed the information gain to propose a new type of density peak clustering method, DGPC; conducted testing for performance promotion; wrote and published a paper as the first author.

2020.03-2020.05   **Analysis of the Application of Agile in NHS**   **Team Member   Manchester, UK**

- Searched and analyzed literature to review the development, principles, strategies and challenges of Agile.
- Searched data of NHS to discuss if Agile could help NHS work more efficiently.

- Suggested that Prince2 and Agile could be used together in the management of NHS based on the literature review and data searching.

2019.10-2019.11   Achievement of PCA and SOM by Matlab   Team Member   Manchester, UK
- Visualized the function of PCA in Matlab and Python, respectively.
- Implemented one and two-dimensional SOM with the utilization of Matlab and Python.
- Based on Python, learned and completed other methodologies of modeling and visualization of high-dimensional data, such as LDA, MDS, ISOMAP, LLE, etc.

2019.10-2019.11   Logistic Regression Algorithm Implementation and Evaluation

Team Member   Manchester, UK
- Implemented and evaluated a logistic regression algorithm with a momentum parameter.
- Used the dataset of UCI Breast Cancer Wisconsin (398 training samples and 171 testing samples) and UCI Credit Card Clients (21000 training samples and 9000 testing samples).
- Processed the dataset by handling missing data and normalizing real-valued features; and used orthogonal testing to test parameters one by one while keeping others unchanged.
- Around 97.7% accuracy (UCI Credit Card Clients dataset) and 79.4% accuracy (UCI Breast Cancer Wisconsin dataset) were achieved.

SELECTED PUBLICATION

First Author, Density Gain-Rate Peaks for Spectral Clustering, IEEE Access Journal
- Digital Object Identifier: 10.1109/ACCESS.2021.3066498
- Abstract: Clustering has been troubled by varying shapes of sample distributions, such as line and spiral shapes. Spectral clustering and density peak clustering are two feasible techniques to address this problem, and have attracted much attention from academic community. However, spectral clustering still cannot well handle some shapes of sample distributions in the space of extracted features, and density peak clustering encounters performance problems because it cannot mine the local structures of data and well deal with nonuniform distributions. In order to solve above problems, this paper proposes a new type of density peak clustering method, DGPC, and then embed it in spectral clustering for performance promotion.

PROFESSIONAL EXPERIENCES

2021.07-present   Kunming Institute of Physics   Research Assistant   Kunming,Yunnan
Work Responsibilities:
- Participate in the research and development of the automatic measurement system for industrial products, focusing on the research of image algorithms, depth modeling algorithms, etc.
- Utilize PHP, MySQL, HTML and JavaScript for the development and maintaining of company website.
- In charge of operation and maintenance of the HPC platform at institute, including the server, GPU, network, virtual environment, etc.

Research & Learning:
- Probe into optics study, optical design and optical simulation to master relevant skills.
- Serve as TA to take charge of courseware preparation, Q&A， and regular meetings for discussion and offering guidance on graduate students' papers.

2018.09-2019.05   Isreal Tadiran Telecommunications Equipment Co., Ltd.   Intern   Kunming, China
- Developed websites.
- Developed and maintained backend database.
- Collected and analyzed clients' information and needs.

2017.08 – 2018.08   Anby Electronic Science and Technology Co., Ltd.   Web Developer Intern   Beijing, China
- Assisted in developing an online database for electric books for the primary and secondary school students.
- Helped to develop a web page for the company.

ADDITIONAL INFORMATION
- Languages: Chinese (native), English (fluent)
- Programming Skills: Python(PyTorch), C++/C, Matlab, Java, PHP, Node.js, HTML, JavaScript
- Interests: Play piano (10th level from Central Conservatory of Music of China of piano playing) and guitar