



JINHUA XU

WORK EXPERIENCE

[01/07/2023 – Current]

Research assistant

College of Mathematical Medicine, Zhejiang Normal University <https://slyx.zjnu.edu.cn/slyxen/>

City: Jinhua | **Country:** China | **Email address:** slyx@zjnu.edu.cn | **Name of unit or department:** College of Mathematical Medicine, Zhejiang Normal University | **Business or sector:** Professional, scientific and technical activities

- **Research Participation and Coordination:** Engage in daily research activities, coordinating projects, preprocessing data, and presenting research findings.
- **Technical Support and Infrastructure Management:** Provide technical support, managing servers, and setting up deep learning environments.

[01/09/2020 – 31/01/2021]

Teaching assistant

School of Mathematical Sciences, Zhejiang University <http://www.math.zju.edu.cn/mathen/>

City: Hangzhou | **Country:** China | **Email address:** mathadmin@zju.edu.cn | **Name of unit or department:** School of Mathematical Sciences, Zhejiang University | **Business or sector:** Education

- **Course Materials Preparation:** Assist the professor in preparing and organizing lecture notes, assignments, and exams.
- **Grading:** Evaluate and grade students' homework, quizzes, and exams, providing constructive feedback.
- **Exercise Classes:** Conduct two weekly exercise classes for students to practice solving calculus problems.
- **Review Sessions:** Lead sessions to help students understand complex calculus concepts and solve problems.

EDUCATION AND TRAINING

[01/09/2020 – 06/01/2023]

Master of Science in Mathematics

Zhejiang University <https://www.zju.edu.cn/english/>

City: Hangzhou | **Country:** China | **Level in EQF:** EQF level 7

[01/09/2016 – 01/06/2020]

Bachelor of Science in Mathematics

University of Electronic Science and Technology of China <https://en.uestc.edu.cn/>

City: Chengdu | **Country:** China | **Level in EQF:** EQF level 6

LANGUAGE SKILLS

Mother tongue(s): Chinese

Other language(s):

English

LISTENING C1 READING C2 WRITING C2

SPOKEN PRODUCTION C1 SPOKEN INTERACTION C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

My Digital Skills

Programming

Python | Matlab/Simulink | C, C++, CUDA | Linux (Terminal Commands, Bash/Shell) | Git

Deep Learning

Frameworks & Libraries: OpenCV, Sci-kit learn, NumPy, Pandas, SciPy, Matplotlib. | Deep Learning frameworks: PyTorch, TensorFlow, Keras | Computer vision

Academic Skills

Academic reading, writing and editing | Text processing (Word, LaTeX)

PROJECTS

[01/03/2022 – 01/06/2023]

Sparse Total Variation in Image Processing

We obtain better results by replacing the total variation(TV) regularization term with a non-convex TV regular term, which introduces a stronger sparse prior into the image recovery and segmentation problem. Then, we use the dual optimization method to transform the non-convex problem into a bi-level convex formation, and construct the alternating direction multiplier method (ADMM) and the projected gradient method (PGD) to solve it. **This project is the main body of my Master's thesis under the supervision of Prof. Jing Yuan.**

[01/09/2022 – Current]

Servers Operation and Management

I oversee the operation and maintenance of three servers at the College of Mathematical Medicine, where I was responsible for configuring a multiuser development environment, maintaining the local Overleaf service, the JupyterHub service, and the Nvidia AI-assisted annotation (AIAA) service.

[01/11/2023 – 01/02/2024]

Brain fMRI Dataset preprocess

An Bash script was constructed for the purpose of processing fMRI datasets from the Human Brain Project. The script implements the complete data processing pipeline, encompassing the steps of downloading data from S3, noise reduction, head motion correction, brain region segmentation, and brain map construction.

[27/06/2024 – Current]

Transvascular Ultrasound Probe Tracking Based on DSA Imaging

This project involves developing a system to track an ultrasound probe within vascular structures using DSA imaging. We utilize traditional methods such as Frangi filtering and the fast marching method, along with deep learning techniques like ResNet for classification. **Real-time tracking of the ultrasound probe within vascular structures under DSA imaging has been successfully achieved.**