SISUO LYU

+86 13972227526 | sisuolv@stu.hit.edu.cn
github.com/sisuolv | kaggle.com/sisuolv

EDUCATION

Harbin Institute of Technology, Shenzhen Sept.2020 – June.2024(expected)
Bachelor of Computer Science and Technology *Shenzhen, China*

- GPA: 91.573/100
- Core Modules:
  Operating System (99), Computer Vision (98), Computational Methods (98), Computer Design and Practice (98), Computer Architecture (97), Principles of Computer Organization (96), Compiler Principles (95)

PUBLICATIONS AND COPYRIGHT

[1] Zhibin Huang*, **Sisuo Lyu***, and Yongyong Chen, "Hyperspectral Anomaly Detection by Multimodal Low-Rank Tensor Representation", *IEEE Geoscience and Remote Sensing Letters(under review).* (*equal contribution)

[2] Chinese Computer Software Works 2021SR0622274, **Sisuo Lyu**, "Extremely lightweight intelligent voice dialogue system", 2021-04-29.

RESEARCH EXPERIENCE

Hyperspectral Anomaly Detection Jan.2023 - June.2023
Supervisor: Prof. Yongyong Chen *Shenzhen, China*

- Introduced a novel method for Hyperspectral Anomaly Detection using Multimodal Low-Rank Tensor Representation (MLTR), and improved the accuracy and generalization capabilities of HAD by employing a low-rank representation of multi-modal tensors.
- Outperformed previous methods on ten datasets and achieved a higher AUC, including the SanDiego dataset. Reduced the running time by approximately 20% compared to TLRSR
- The paper is submitted to IEEE Geoscience and Remote Sensing Letters[1].

Next-POI Recommendation Sept.2022 - April.2023
Supervisor: Prof. Shanshan Feng *Shenzhen, China*

- Thoroughly reviewed all the papers, and successfully replicated the code from groundbreaking studies on Next-POI, published in 2021 and 2022. Gaining a basic understanding of the Next-POI field.
- Actively contributed to research group meetings, presenting relevant articles and sharing my insights, fostering a collaborative learning environment. Engaged in constructive discussions within the research group regarding potential enhancements to these models.

ACADEMIC COMPETITION

Image Matching Challenge 2022 April.2022 - May.2022
Computer Vision and Pattern Recognition Conference(CVPR) 2022 Workshop *New Orleans, U.S.*

- Participated in a competition that involved identifying matching physical points within two images from the same scene. Used local features to create description vectors and establish correspondence between pixel coordinates across multiple images.
- Fused matching results from four models (LoFTR, SuperGlue, DKM, and QuadTreeAttention), and employed ThreadPoolExecutor for efficient, multi-threaded inference on key points and F-matrix calculation within the competition's time constraints.
- Achieved 8th place and earned a gold prize with final results of 0.84675 on the public leaderboard and 0.84871 on the private leaderboard.

Sorghum -100 Cultivar Identification - FGVC 9 April.2022 - May.2022
Computer Vision and Pattern Recognition Conference(CVPR) 2022 Workshop *New Orleans, U.S.*

- Developed an algorithm to identify 100 distinct sorghum species from 48,106 images captured throughout the growing season, addressing challenges such as high interclass visual similarity, fine-grained classification, varying lighting conditions, exposed images, and changing plant status and height.

- Utilizing histogram equalization improves image quality, while employing IBN-Net integrates instance normalization (IN) and batch normalization (BN), bolstering model learning capacity and generalization to address competition challenges. Implementing ArcFace enhances the model's discriminative ability for superior performance.
- Achieved a ranking of 3 out of 252 participants with final model scores of 0.956 on the public leaderboard and 0.957 on the private leaderboard.

System Certification Risk Prediction Sept.2021 - Nov.2021

The 9^{th} CCF Big Data & Computing Intelligence Contest *Hangzhou, China*

- Developed a user authentication behavior feature and risk anomaly assessment model using LightGBM, user data, and risk markers to evaluate potential risks associated with user authentication behavior.
- Leveraged LightGBM to enhance prediction performance, extracting crucial time features and improving the model through statistical crossover and categorical feature word embeddings. Employed hierarchical multi-fold cross-validation for superior generalization and applied normalization and fusion methods post-ranking to boost complementary capabilities.
- Secured 1st place and the national first prize with the model, achieving a final score of 0.5347 on the public leaderboard and 0.5377 on the private leaderboard.

COMPETITION AWARDS

- National Second Prize (5^{th} place), *"Huawei Cloud Cup" 2022 Artificial Intelligence Application Innovation Competition (Creators),* 2022.
- National Third Prize, Rank 12/3,204 (preliminary contest), *WeChat Big Data Challenge, China Collegiate Computing Contest,* 2022.
- Honorable Mention Award (7^{th} place), *Weakly Supervised Cell Segmentation in Multi-modality High-Resolution Microscopy Images, NeurIPS 2022 Challenge,* 2022.
- Silver Medal, *Feedback Prize - Evaluating Student Writing, Kaggle,* 2022.
- Rank 38/3,426, *Cloud Native shared memory database performance optimization, The 4^{th} Global Database Competition,* 2022.
- National Third Prize (5^{th} place), *Script Character Emotion Recognition, The 9^{th} CCF Big Data & Computing Intelligence Contest,* 2021.
- Silver Medal, *Bristol-Myers Squibb-Molecular Translation, Kaggle,* 2021.
- First Prize, *The 11^{th} APMCM Asia-Pacific Student Mathematical Modeling Competition,* 2021.
- Third Prize, *The Chinese Mathematics Competitions,* 2021.

SOCIAL EXPERIENCE

Coastal Village Mangrove Mapping March.2022 – April.2022

The United Nations Volunteers (UNV) programme *Papua New Guinea*

- Created a partial map of the mangrove coastal enclave with GIS, Drones, and Remote Sensing, in Barakau Village, Port Moresby, Papua New Guinea, highlighting our contribution to understanding this ecosystem.
- Prepared a concise report on the status of mangrove conservation in this village, demonstrating our commitment to environmental preservation.

HONORS

Outstanding Student Honor	Harbin Institute of Technology	2021, 2022
Academic Scholarship	Harbin Institute of Technology	2021, 2022
Excellent League Member Honor	Harbin Institute of Technology	2022
Science and Innovation Star Scholarship	Sailvan Times	2022

TECHNICAL SKILLS

Programming Languages	Python, C/C++, Java, Verilog, MATLAB
Deep Learning Library	PyTorch, OpenCV
Language	English(Fluent), Mandarin(Native)