

Guanlin LIU

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EDUCATION BACKGROUND

Sun Yat-sen University	Guangzhou, China
Major in Computer Science and Technology	09/2020 - 06/2025 (expected)
<ul style="list-style-type: none">GPA: 3.6/4.0Relevant Courses: Advanced Mathematics (99), Machine Learning and Data Mining (98), Computer Programming (97), Application of Matlab (97), Computer Networks (96), Engineering Drawing and CAD (95), Probability and Statistics (93), Fundamentals of Big Data and Artificial Intelligence (92)	

RESEARCH EXPERIENCE

Intelligent Perception Laboratory, Sun Yat-sen University	07/2023 - 10/2023
<i>Research Assistant</i>	
<ul style="list-style-type: none">Reviewed a large number of papers and literature in the field of deep learning and medical image processing to solidify the theoretical foundation of deep learning.Participated in the development of an automated lung nodule detection method based on deep convolutional neural networks.Was responsible for the implementation of the network architecture; used UNet-based semantic segmentation techniques to detect lung nodules in CT images, training on a dataset of 218GB from multiple CT results of 211 patients.	

PROJECT EXPERIENCE

Improved ResNeXt Network for Face Recognition	04/2024 - 05/2024
<i>Individual</i>	
<ul style="list-style-type: none">Studied cutting-edge papers and reproduced and improved existing models using the deep learning framework PyTorch.Replaced the residual blocks in ResNet-18 with ResNeXt blocks based on the ResNeXt architecture, optimized the model structure for the dataset, reduced model complexity, and introduced dropout layers to reduce overfitting.Applied data augmentation techniques and balanced sampling methods to improve the quality of training data.Conducted a comparative analysis of ResNet, ResNeXt, and ConvNeXt; the improved model developed in the project outperformed all compared models, with a 50% increase in prediction accuracy compared to the baseline.	
Regional Risk Assessment Model Based on HEV Indicators	02/2024
<i>Team Leader & Lead Programmer</i>	
<ul style="list-style-type: none">Was responsible for the project's coding implementation, utilizing Python and SPSS for data processing, model building, and result analysis.Proposed and developed the HEV model, which integrates regional risk factors, development level, and risk resilience, and successfully applied it to insurance premium prediction.Used entropy weighting method for indicator weighting, combined with HEV coefficients to build a ranking system for real estate development; applied entropy weighting and TOPSIS to determine building protection levels, which was successfully applied to the modeling of the Confucius Temple in Hainan Province, China.Participated in the 2024 Mathematical Contest in Modeling, achieving a top 2% score among all participating teams and earning the Finalist award.	
3D Skiing Game Development Using OpenGL and C++	11/2023 - 12/2023
<i>Core Developer</i>	
<ul style="list-style-type: none">Applied computer graphics knowledge and used C++ to build characters, game scenes, and design various game mechanics.Implemented the Blinn-Phong illumination model to perform ambient, diffuse, and specular light calculations, bringing the game to life with intricate details and realistic textures.Achieved and optimized shadow effects using the PCF algorithm, eliminating the aliasing phenomenon and improving the visual experience of the game.	

- Implemented character movement and collision, enabling players to control the character for complex movements and interactions.

**Multibeam Survey Line Problem of Survey Vessels Based on
Analytic Geometry and Optimization Algorithms**

09/2023

Team Leader & Lead Programmer

- Was responsible for the project’s coding implementation, utilizing Python and SPSS for data processing, model building, and result analysis.
- Addressed the multibeam survey line problem of survey vessels by establishing a mathematical model using analytic geometry and vector operations, and solved it using nonlinear constrained optimization algorithms; proposed survey schemes to meet different optimization objectives.
- Simulated seabed topography using bilinear interpolation and applied the established model to actual sea areas, solving multi-objective optimization problems with Pareto optimal solutions.
- Participated in the 2023 China Undergraduate Mathematical Contest in Modeling, achieving a top 15% score among all teams and being awarded the Second Prize in Guangdong Province.

EXTRACURRICULAR ACTIVITY

Guitar Association

10/2023 - Now

Planner (Club Member), Planning Department

- Planned and organized the new member meet-and-greet, creating detailed event plans, including equipment preparation and venue setup, to ensure the orderly execution of the event.
- Promoted events through various online and offline channels to attract new members, enhancing the club’s visibility and influence.

HONORS & AWARDS

Finalist in the 2024 Mathematical Contest in Modeling (top 2%)	05/2024
Second Prize in the 2023 China Undergraduate Mathematical Contest in Modeling, Guangdong Province (top 15%)	11/2023
Third Prize Outstanding Student Scholarship at Sun Yat-sen University (top 30%)	11/2021

LANGUAGES & SKILLS

Language: Chinese (native), English
Software: Proficient in Python and C, Familiar with C++ and MATLAB