CHEN ZIKANG

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EDUCATION

ShanghaiTech University *2021.9 - 2025.6*
Computer Science and Technology GPA: 3.22
Course work :Artificial Intelligence; Introduction to Machine Learning; Database; Numerical Optimization; Convex Optimization and Its Applications in Information Science

PROJECTS

Optimization of 2048 Game, Artificial Intelligence
On the basis of implementing the 2048 game interface and basic functions, various search algorithms, evaluation functions, and movement strategies were applied to explore and optimize the game, making it more challenging and interesting, with the final success rate reaching 60Search algorithms including breadth-first, depth-first, greedy, and expectation-maximization were used, and the game was played by providing evaluation values for the game situation at different stages.

Applications of Wavelet Transform, Computational Science and Engineering
Attempted to independently simulate wavelet transform and compare it with existing wavelet libraries. Meanwhile, wavelet transform was applied in the existing MATLAB toolbox for image denoising and fusion. Sub-bands of different frequencies of images were obtained through wavelet transform, and threshold screening or fusion was performed by controlling thresholds.

Improved Hand-Eye Calibration Based on Depth Camera ,Graduation Project
Developed an enhanced hand-eye calibration algorithm by integrating depth information (point cloud) and robotic arm models.
Designed and implemented a lightweight, web-based 3D interaction interface, enabling 3D model import, annotation, and manipulation. Introduced drag-and-drop adjustments to streamline user operations and improve efficiencyDeveloped an improved hand-eye calibration algorithm, integrated depth information with a robotic arm model to form point clouds, realized fully automatic mask segmentation of target objects via SAM, and optimized the registration of depth camera and robotic arm point clouds combined with the ICP algorithm.
Designed a lightweight Web-based interactive interface to support image import and threshold setting, enhancing the flexibility of image segmentation.

Wind Speed Correction for Wind Measurement Towers
Developed an ultra-short-term wind power prediction system based on a fused Transformer and ResNet1D model, achieving accurate wind speed prediction for the next 2-8 hours through meteorological data (WRF) and wind measurement tower observation data (UV wind speed), improving wind power prediction accuracy by 20Used multi-head attention mechanism and cross-attention module to model the temporal dependencies between meteorological forecasts and observation data; employed ResNet to extract local features, and combined adaptive pooling and fully connected layers to output wind speed prediction results for multiple height layers.

ACTIVITIES

Generative AI Innovation Challenge, ShanghaiTech University
The project was inspired by the stress encountered during project development, which led to the need for some interesting and stress-relieving entertainment. It was decided to create a simple game relying on the then-popular AIGC.

Generated text (ChatGPT) and images (Stable Diffusion) related to user needs through prompt optimization strategies.
Built a localized API service, deployed Stable Diffusion locally, processed the generated images, and achieved efficient inference of AI models.
Conducted secondary development based on an existing PyQt project to produce and form the final demonstration demo.

The 1st DataTech Alchemist Cup, ShanghaiTech University
Designed an efficient butterfly image classification model based on the ResNet50 network, integrating the CBAM module to enhance the ability to capture key features.
Introduced CutMix data augmentation and dynamic learning rate scheduling, and improved inference robustness through test-time augmentation (TTA).
The final classification accuracy reached 94

Participated in volunteer services multiple times, such as being a volunteer at the Shanghai Library East Branch and the Shanghai Marathon.

SKILLS

Languages
CET4:572 CET6:574

AWARDS

Generative AI Innovation Challenge First Prize , ShanghaiTech University