Yizhu Jin Email : 19374316@buaa.edu.cn
RacerK.github.io

Education

Beihang University Beijing, China
- *Bachelor of Science in Automatic Control* *Sep. 2019 - Present*
  - **Major Class GPA**: 3.75/4.00
  - **Ranking**: top 10%

Working Experience

Beijing GalaxySpace Beijing, China
- *Research Assistant, Remote Sensing Image Processing on cloud detection and dehazing* *Jul. 2022 - Present*

Publications

- **Jin, Y. Research on LightGBM Default Prediction Algorithm Based on the Slice Sampling Process.** CSTMM, 2022.
- Xu, L., Li, Y., **Jin, Y. Dynamic-Frequency Encoded Transformer on Retinal Vessel Segmentation.** in submission.
- **Jin, Y.***, Chen, J.*, Huang, L., Tian F. **DFP-Net: Dehazing for Perception** in submission.

  * Equal Contribution

Research Experiences

DFP-Net : Dehazing for Perception
Feb. 2022 - Aug. 2022
- Proposed a novel architecture for multiscale feature extracting and representation based on reformulated ASM model.
- Decreased the complexity by more than 10 times compared to SOTA for downstream real-time applications.
- Stressed the interpretability of the algorithm by conducting theoretical analysis and ablation experiments.

Dynamic-Frequency Encoded Transformer on Retinal Vessel Segmentation
Advisor : Prof. Yang Li *Nov. 2021 - Jun. 2022*
- Proposed a Dynamic Frequency Encoder integrated with DFT Filter as the embedding inputs of Transformer.
- Combined the U-Net architecture with Gated Axial-Attention Transformer as a generalized formation on 7 datasets.
- Achieved 97.23% accuracy, 0.9913 AUC score on the DRIVE dataset, outperforming state-of-the-art methods.

Doctor-friendly Diagnosis System Based on Retinal Vessel Segmentation Algorithm
Advisor : Prof. Yang Li *Jan. 2021 - Mar. 2022*
- Built a website for doctors to upload the original fundus oculi images and get segmentation references online.
- Developed the function of query online, remote consultation as well as dynamic tracking for patients' condition.
- Published software copyright and deployed in TongRen hospital (possessing China's most prestigious Ophthalmology).

Slice-Sampling: An Approximate Equivalence to Integrated Learning for Dual Forecast
Advisor : Prof. Jingyuan Wang, Prof. Shufan Ji *Oct. 2021 - Feb. 2022*
- Simplified the dual forecast problem through retraining on sliced dataset based on AUC optimization.
- Designed a heuristic Slice Sampling Algorithm to fine-tune the incorrectly sorted positive-negative sample pairs.
- Analyzed the similarities between multi-model based Integrated Learning and single-model based proposed method.

Resource Allocation Optimization Against Drought Based on Genetic Algorithm
Advisor : Prof. Lei Wang *Feb. 2022 - Feb. 2022*
- Applied Least Squares Fitting and Infinitesimal Calculus to fit the integrated general coefficient.
- Improved the fitness function of GA by introducing a key factor as a divisor to guide the optimizing process.
- Won Meritorious Prize (top 7%) in Mathematical Contest In Modeling, 2022.

Correlation Imaging Based on Global Linear Equivalence and Transformation
Advisor : Prof. Wenling Wang *Mar. 2021 - Aug. 2021*

- Transformed the light intensity to image gray scale numerically to simplify the sophisticated light path.
- Introduced the global linear scattering coefficient in the calculating process dynamically for real application.
- Won the outstanding prize (top 1%) of designing Fundamental Physics Experiment in BUAA, 2021.

Awards and Honors

Remarkable Social Practice Experience **First Prize**, *BUAA* Feb. 2022
Outstanding Performance on Study Scholarship **First Prize** (top 8%), *BUAA* Sep. 2020 & 2021
Outstanding Performance on Subject Competition Scholarship **Grand Prize** (top 3%), *BUAA* Sep. 2020 & 2021
Honor Student of Fengru Academy, *BUAA* Sep. 2020

Coding

- **Primary Languages**: C, Python, Java
- **Others**: C++, Matlab