Qihang Jin

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EDUCATION

University of Science and Technology of China (USTC), Institute of Advanced Technology　　　　　**Hefei, China**

Master of Engineering in Electronic and Information Engineering | GPA: 3.8/4.3　　　　Aug. 2024 – Jun. 2027

Relevant Courses: Computational Number Theory, Advanced Artificial Intelligence, Computer Vision, Advanced Computer Networks, Deep Learning by Doing, TinyML

Honor: First-Class Graduate Scholarship, USTC Graduate School (2025)

Chang'an University, School of Automobile　　　　　**Xi'an, China**

Bachelor of Engineering　　　　Aug. 2018 – Jul. 2022

PUBLICATION

Effect of Brain-Computer Interface on Limb Motor Function after Intracerebral Hemorrhage in Basal Ganglia and Its Rehabilitation Mechanism. Under review, Jun 2025

Multimodal Representation Learning and Fusion. Under review, Jun 2025

RESEARCH EXPERIENCE

HySSM-Pyramid Learnable Hypergraph Scans for Multi-Scale Vision　　　　Since Jul. 2025

- Developed HySSM-Pyramid visual backbone; proposed a learnable hypergraph scanning mechanism, constructed differentiable hyperedges on pyramid features and integrates learnable anchors with gated scanning/aggregation. Combined SSM-based linear spatiotemporal accumulation with hypergraph message passing to capture long-range dependencies and multi-scale context, while maintaining $O(N)$ scanning efficiency and numerical stability constraints.

- Implemented core modules and a robust training pipeline (LAMB + per-step cosine warmup/cooldown, EMA, AMP, mutually exclusive MixUp/CutMix); debugged NaN issues from scheduling and overflow; completed distributed acceleration, FLOPs/throughput profiling, and YAML/script automation; achieved competitive accuracy and reproducibility on ImageNet-1K with low computational cost.

Jacobi Orthogonal Rotation Adapter via Sparse Givens Rotations and Tiny Core　　　　Since Jul. 2025

- Proposed and implemented the J-ORA adapter, constructing $\Delta W = Q\_L D Q\_R^T$ using bilateral sparse Givens rotations and a Tiny Core (diagonal/block/micro low-rank structure). Introduced curvature-normalized greedy pair selection, small-angle closed-form initialization, and Cayley-stable updates, coupled with spectral norm regularization and S-budget warm-up.

- Engineered fused Triton kernels and bake inference; fully integrated with LLaMA-Factory (CLI/WebUI, unified hyperparameters); completed end-to-end training and system ablation.

Automotive Performance Data Processing and Analysis Software　　　　Jun. 2022

- Developed a MATLAB/GUI application for automotive performance experiment data analysis, featuring multi-interface switching, numerical analysis, and curve fitting.

- Calculated key performance indicators (dynamics, fuel economy, braking, stability) and generated comprehensive reports with data, charts, and conclusions to support engineering decisions.

- Implemented multiple data analysis algorithms with accuracy and efficiency; conducted testing to ensure reliability.
- Built a user-friendly GUI that enables data entry, analysis selection, and result visualization, improving efficiency by 10%

PROJECT EXPERIENCE

Integrated UAV Inspection Training Platform | Development Engineer   Since Sept. 2024

- Developed a high-fidelity UAV inspection simulation platform using UE4.27 and AirSim, integrated with an e-sports cockpit for enhanced immersion and interactivity.
- Independently designed a user-friendly interface to ensure smooth operation and intuitive control.
- Developed backend algorithm, optimizing UAV localization, autonomous flight, and collision detection; reduced response latency by 10%. Optimized code performance, improving system efficiency by 5%.

License Plate Recognition System Based on Convolutional Neural Network | Project Leader   2020

- Designed and implemented a CNN-based license plate recognition system, achieving 95% recognition accuracy across diverse image datasets.
- Developed a comprehensive image preprocessing pipeline with OpenCV, including camera calibration, color segmentation, contour detection, grayscale conversion, Sobel edge detection, binarization, character segmentation, Gaussian blurring, and flood filling to enhance OCR accuracy.
- Trained and fine-tuned CNNs on large datasets, ensuring robustness to lighting and view variations.
- Applied data augmentation, dropout, and batch normalization to enhance generalization and prevent overfitting; optimized hyperparameters for balanced performance and training efficiency.

"Internet+" Competition: Main Track Bronze Award | Project Leader   2020

- Led OpenCV-based image preprocessing for license plate detection, constructing a pipeline with camera calibration, color segmentation, and contour detection for precise localization.
- Applied grayscale conversion, Sobel edge detection, binarization, character segmentation, Gaussian blurring, and flood filling to improve OCR recognition accuracy.
- Tuned parameters and algorithm combinations to enhance robustness under complex illumination and viewing conditions, significantly reducing noise, and improving segmentation accuracy.
- Organized and co-authored the competition paper detailing algorithm design and performance analysis; the project achieved excellent results and received a Bronze Award.

PATENT

Jin Qihang, Cheng Zhaozhan. 2021. Adjustable limiting and fixing device for automated machining. CN 110480545 B, filed 08/23/2019, issued 07/09/2021.

SKILLS

- Languages: Chinese (Native), English (Fluent, IELTS 6.5, CET: 529)
- Technical: Python, C, C++, Microsoft Office (Word, Excel, PowerPoint)
- Machine Learning Tools: PyTorch, Scikit-learn, Pandas, NumPy