**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 ΔW = 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 |**  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%.

**| Project Leader**

* 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