

# Yuxia Chen

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## EDUCATION

<b>Chengdu University of Technology(CDUT)</b> , Chengdu, China M.Eng., Electronic Information Engineering <ul style="list-style-type: none"><li>• <b>GPA:</b> 3.5/4.0 (<b>Rank:</b> 1/77)</li><li>• <b>Coursework:</b> <i>Deep Learning for Image Processing, Modern Signal Processing</i></li></ul>	<b>Sept 2021 – June 2024</b>
<b>Southwest University of Science and Technology(SWUST)</b> , Chengdu, China B.Eng., Electronic Information Engineering <ul style="list-style-type: none"><li>• <b>GPA:</b> 3.0/4.0</li><li>• <b>Coursework:</b> <i>Digital Electronics, Computer Architecture and Applications</i></li></ul>	<b>Sept 2017 – June 2021</b>

## PUBLICATIONS

- [1] **Y. Chen**, P. Fang, X. Zhong, J. Yu, X. Zhang, and T. Li, “HiResNet: Edge detail enhancement for high-resolution remote sensing segmentation”, *IEEE J. Sel. Topics Appl. Earth Observ. Remote Sens.*, vol. 17, pp. 15024–15040, 2024.
- [2] **Y. Chen**, P. Fang, et al. Animal biometrics: a review and a new framework for individual donkey identification. (Under review)
- [3] **Y. Chen**, P. Fang et al. MaCoMamba: Mask-Integrated Complex-Aware Mamba for Dual-Domain MRI Image Segmentation. (Under review)
- [4] **Y. Chen**, P. Fang et al. Teaching materials based on clamping projects. (Under review)

## RESEARCH PROJECTS

### HiResNet: Edge detail enhancement for high-resolution remote sensing segmentation

First Author

Aug 2022 - Dec 2023

- Proposed a Hi-ResNet with efficient network structure designs, which consists of a funnel module, a multibranch module with stacks of information aggregation (IA) blocks, and a feature refinement module, sequentially, and class-agnostic edge-aware (CEA) loss.
- Achieved state-of-the-art results in the LOVEDA datasets, outperforming prior methods by +1.4 mIoU.
- Responsible for model design, ablation study, and main contributor to manuscript preparation.

### Animal biometrics: a review and a new framework for individual donkey identification.

First Author

Dec 2024 - Present

- Constructed a novel dataset of individual donkeys, including full-body and facial region annotations, keypoint labels, and individual identity assignments.
- Designed a complete pipeline for donkey identity recognition, including detection, alignment, feature extraction, and classification.
- Conducted a comprehensive literature review of animal biometrics.

### MaCoMamba: Mask-Integrated Complex-Aware Mamba for Dual-Domain MRI Image Segmentation.

First Author

Mar 2025 - Present

- Pioneered vision Mamba for MRI segmentation by introducing circular spectral scanning to improve k-space global modeling.
- Proposed a dual-domain hierarchical Mamba framework with efficient spectral-aware scanning in both k-space and graph space.
- Developed a novel k-space cross-attention mechanism for complex-valued feature modeling.
- Designed a local enhancement module to enrich spatial diversity and fine-grained detail representation.
- Achieved state-of-the-art performance (IOU = 78) on the BraTS 2021 dataset under the most challenging  $8\times$  uniform undersampling setting.

**TempRL: A Temporal-Aware Multimodal LLM with Reinforcement Learning for Long Video Understanding.**  
*First Author*

*Dec 2024 - Present*

- Designed a timestamp-aware video encoder with structured temporal embeddings to enhance event ordering and duration modeling.
- Integrated audio modality via frame-level alignment to improve emotion perception and temporal boundary detection.
- Applied reinforcement learning with temporally guided rewards to boost causal reasoning and instruction alignment.

**WORK EXPERIENCE**

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**Chengdu Jiaozi Financial Holding Group Co., Ltd. (Chinese Top 500 Enterprise)**  
*AI Algorithm Engineer*

Sept 2023 – Present

- Designed a modular multi-agent advisory system powered by Qwen LLM, incorporating multi-turn intent recognition, RAG and long-context retrieval to support enterprise-level financial consultations.
- Built ML models on 2M+ enterprise records to predict financing intent strength and business stage for precise client targeting.
- Authored 6 invention patents and 3 software copyrights covering key innovations in LLM-driven knowledge modeling, the generation of credit risk strategies, and financing recommendation systems.

**Chengdu Guoxing Aerospace Technology Co., Ltd.**  
*AI Algorithm Engineer*

Aug 2022 – June 2023

- Designed and implemented text-to-speech pipelines using VITS-Chinese, BigVGAN, and SpanPSP, with full pre-processing and alignment of speech, prosody, and text modalities.
- Built a multimodal AIGC-based avatar system for metaverse interaction, integrating GPT-based language understanding, WavLip-driven facial animation, and real-time TTS; introduced face segmentation to eliminate border artifacts in generated avatars.
- Developed a high resolution satellite remote sensing image semantic segmentation network to perform pixel-wise classification of seven categories: buildings, roads, vegetation (grassland, forest), rivers, greenhouses, and wasteland.

**Honors and Awards**

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|---|------|
| • Second Prize in the National AI Application Scenario Innovation Competition | 2024 |
| • Second Prize in the Ascend AI Innovation Competition                        | 2024 |
| • <b>Outstanding Graduate of Chengdu University of Technology</b>             | 2024 |
| • Third Prize in the National AI+ Vision Feature Encoding Competition         | 2023 |
| • Second Prize in the 13th Lanqiao Cup Software Competition                   | 2021 |
| • <b>National Endeavor Scholarship of Chengdu University of Technology</b>    | 2021 |
| • <b>First Class Scholarship of Chengdu University of Technology</b>          | 2021 |
| • Industrial Internet Platform Developer Certificate                          | 2021 |
| • Talent Training Program Certificate   | 2020 |

**Skills**

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**Languages :** Chinese (native), English (CET-6, preparing for IELTS)  
**Tech Stack :** Frontend/Backend: Python, MATLAB, Java, MySQL | DevOps: Linux, Git, Docker  
Algorithms: HRNet, Mamba, RAG, VITS, Prompt Engineering, Transformer, WavLip, SpanPSP