

Weixi (Sisicca) Xiang

✉ xiangweixi@hotmail | 🌐 github.com/xwx1999 | 🌐 Personal Homepage | 📄 Google Scholar | 🌐 Weixi Xiang

Education

Agricultural Information Institute of Chinese Academy of Agricultural Sciences 2022/09 - 2025/06 (Expected)
Candidate for Master in Management Science and Engineering Beijing, China

- School Second-Class Academic Scholarship, 2023.
- School Academic Scholarship, 2022.

University of Electronic Science and Technology of China 2018/09 - 2022/06
Bachelor of E-commerce and Bachelor of Electronic Engineering Chengdu, Sichuan, China

Research Interests

I am broadly interested in Computer Vision (CV) and its applications in agriculture, such as animal face recognition. I am also interested in AI for Science including computational biology, and the deployment and optimization of deep learning models on edge devices.

Publications

- **A Novel Unsupervised Autoencoder-Based HFOs Detector in Intracranial EEG Signals.** W. Li, L. Zhong, **W. Xiang**, T. Kang and D. Lai. 2022 *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2022)*. [Paper]

Research Experience

BMI-EP Lab, University of Electronic Science and Technology of China 2020/12 - 2021/06
EEG Signals Processing, advised by Prof. Dakun Lai Chengdu, Sichuan, China

- High-frequency oscillations (HFOs) have been established as a potent biomarker in epilepsy research. However, current HFO detection methodologies predominantly rely on manual feature extraction and supervised learning, which are labor-intensive and time-consuming due to the feature selection and labeling processes.
- My research focuses on designing the deep learning model, specifically developing an automatic unsupervised HFO detection approach utilizing a **Convolutional Variational Autoencoder (CVAE)**.

Visual Perception Lab, Agricultural Information Institute of CAAS 2022/12 - 2023/09
Animal Face Recognition, advised by Prof. Xiujuan Chai Beijing, China

- I have been engaged in long-term research on **Animal Face Recognition (AFR)** at Visual Perception Lab. To mitigate the challenges in collecting large-scale animal face datasets, I introduced **Cross-Species Attention Knowledge Distillation (CS-AKD)**, a method for animal face recognition with limited data, using attention feature extraction from specific facial regions and knowledge transfer from teacher to student networks.

Visual Perception Lab, Agricultural Information Institute of CAAS 2023/09 - 2023/12
Deep Learning-Enhanced Core SNP Identification, advised by Prof. Xiujuan Chai Beijing, China

- The project aimed to leverage deep learning algorithms, specifically **DropRank**, to identify **core single nucleotide polymorphisms (SNPs)** from vast genomic datasets. This was a departure from traditional methods, which often struggled with the sheer volume and complexity of modern genomic data. This experience equipped me with a unique skill set that I am eager to apply in future endeavors, where I can contribute to the advancement of agricultural sciences.

Visual Perception Lab, Agricultural Information Institute of CAAS 2023/12 - Present
Deep Learning-Enhanced EBV, advised by Prof. Xiujuan Chai Beijing, China

- I enhanced the **Transformer** architecture for **Estimating Breeding Values (EBV)** in swine through a tailored loss function, incorporating **correlation coefficients**. This approach underscored the significance of domain knowledge in model development and the potential for hybrid models that combine machine learning with traditional breeding metrics.

Technical Skills

- **Languages:** Python, C/C++, CUDA, Shell, LaTeX
- **Frameworks and Tools:** Pytorch, JAX, Docker, MPI, OpenMP, AWS, Sklearn, Numpy, DeepSpeed, RISC-V
- **AI:** Computer Vision (YOLO Series, ArcFace Series, OpenCV, Stable Diffusion) | Natural Language Processing (LLaMa-2) | Multimodal Pretrained Model (BLIP-2, LLaVa)