Chengxing Xie |

☎ (+86)13957199364 • ✉ 21009100517@stu.xidian.edu.cn
⌂ /yitianlian.github.io/

Education

XiDian University,   **Xi'An China**
Undergraduate in Computer Science   *Sep. 2021 – June. 2025 (expected)*

Advisor: Prof. Weisheng Dong
Core Courses: Intro to Programming (C/C++/Python), Algorithm and Data Structure, Advanced MathematicsLinear Algebra
Self-Instructed AI courses: Stanford CS231n: Convolutional Neural Networks for Visual Recognition, CS236: Deep Generative Models, UCSB Game 101: Introduction to Modern Compter Graphics
GPA: 3.9/4.0

Research Interests

My research interests focus on the integration of Computer Vision and Artificial Intelligence, with a particular emphasis on the following two areas

- **Multimodal Generative Model**, including VAE, GAN, Diffusion Model, etc, from their theory to application. I also have interest in AI-Generated Content (AIGC) applications.
- **Zero-Shot and Few-Shot Learning**: I am dedicated to investigating sample-efficient model training and tuning techniques, to enhance the adaptability of AI systems in diverse domains.

Publication

1. **TFRGAN: Leveraging Text Information for Blind Face Restoration with Extreme Degradation**
   - **Chengxing Xie, Qian Ning, Weisheng Dong, Guangming Shi**
   - **Submit to CVPR Workshop** (Multimodal Learning and Applications Workshop)

Skills

Programming Language: C, C++, python, LATEX

Deep Learning Framework: Pytorch, Tensorflow

Computer Graphics Tools: Vulkan

Others: PS

Hobby: badminton, bodybuilding, animation

Research Experience

Photoelectric Imaging and Brain-like Perception Lab   **XiDian University**
Research Assistant   *Nov. 2022 – Present*

- Advisor: Prof. Weisheng Dong, Dr. Qian Ning
- Working on "Blind face restoration with Multimodal guidance"
- We incorporate textual information for face restoration task. By fusing text annotations with image features, we make restored facial images more closely resemble real-life scenarios. **The result submit to CVPR Workshop, Multimodal Learning and Applications**.
- I am currently exploring employing **diffusion models** into Blind Face Restoration tasks.

SenseTime Research   **Xian**
Algorithm Intern, AI for Health Team   *Feb. 2022 – Nov. 2022*

- Mentor: Dr. Qigong Sun, worked on "An Intelligent Care System for People with Disabilities"
- **Project 1: Cough Detection**
  - Persistent coughing issues are prevalent and can be life-threatening in severe cases.
  - We designed a cough detection algorithm(SED) specifically for this situation. When the person under care exhibits continuous coughing, the app will automatically trigger an alarm.
  - **This feature has already been integrated into SenseTime product, and has been put to use in real-world scenarios for fighting COVID virus.**
- **Project 2: Sleep Quality evaluation depending on thermal images**
  - To address privacy concerns and accommodate the dark environment, we utilize thermal imaging rather than traditional RGB images to assess the sleep state of individuals and generate sleep reports accordingly.
  - By monitoring real-time changes in body pixel points, we can deduce a person's sleep state based on their movements, allowing us to create nightly sleep state graphs.
  - **This feature has been successfully integrated into the relevant SenseTime product.**
- **Project 3: Audio-Text CLIP Model**
  - Our goal in the speech task is to effectively connect speech with its corresponding text. We are investigating whether employing CLIP's training methodology could enhance results in this area.
  - The pre-training method is inspired by the CLIP model, utilizing AudioSet data and incorporating DistilBert and Data2Vec encoders. Find the repository here
  - After multiple training epochs, we noted a consistent decrease in loss and increased accuracy.

Self-Instructed Online AI Courses

Stanford CS231n: Convolutional Neural Networks for Visual Recognition
Taught by Prof. Fei-Fei Li, Justin Johnson and Serena Yeung   *Sep. 2021-Oct. 2021*

- To learn the basic knowledge of the computer Version, and ask advisor when meeting problems. In this course, I learned some typical neural network structures and basic models, including MLP, CNN, etc. Also, some classic Computer Vision tasks, like object detection semantic segmentationare mentioned in the course. Above these, I also know some basic optimize strategies, batchnormInstancenorm, Adam, Dropout, etc. Through this class, I know the basic concepts and get insight into the world of Computer Vision.

Stanford CS236: Deep Generative Models
Taught by Prof. Stefano Ermon and Dr. Yang Song   *Sep. 2021-Oct. 2021*

- Gan offers numerous benefits over the more traditional technologies. These include a higher power density higher thermal conductivity, and reduced power requirements. These benefits can lead to better efficiency, a smaller form factor, increased reliability, and best-in-class performance. The use of Gan transistors supports key RF demands such as high gain, low power consumption, high throughput, and extremely fast switching speeds.

UCSB Game 101: Introduction to Modern Compter Graphics
Taught by Prof. Lingqi Yan   *Sep. 2021-Oct. 2021*

- Watching the online lecture Games 101 to learn Computer Graphics.
- Reading the book:'Ray Tracing In One Week', and can create a photo containing a 3D ball only use Visual studio c++,not depend on OpenGL

Extra-Curriculum Activities

- the member of Xidian MSC club(Artificial Intelligence Department and ACM Group). Help organize the technology salons hosted by MSC Club