Youran Qu

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Education

Peking University (PKU), Beijing 09/2020 – 07/2025

B.S. in Intelligence Science and Technology, GPA:3.52/4.0

- Awards: 2023 Tianchuang Scholarship at PKU (top 20%)

The University of British Columbia (UBC), Vancouver 08/2023 – 12/2023

B.E. in Computer Science (Exchange Student), GPA:4.3/4.3

Publications

- Jiahe Liu, **Youran Qu**, Qi Yan, Xiaohui Zeng, Lele Wang, Renjie Liao "Fréchet Video Motion Distance: A Metric for Evaluating Motion Consistency in Videos" in **ICML'24 Workshop, [PAGE][LINK]**

Research experience

AI Model Performance Evaluation on Science Videos, UC Davis 07/2024 – Present

Research Assistant, Supervised by Prof. Lifu Huang

- Developed a diverse benchmark dataset of science videos across subjects such as chemistry and physics, designed to evaluate video reasoning capabilities of large AI models
- Conducted in-depth evaluation on large-scale AI models for reasoning accuracy and domain-specific understanding in scientific domains, and enhance performance though advanced fine-tuning algorithms

Metric for Evaluating Motion Consistency in AI generated Videos, UBC 08/2023 – 01/2024

Research Assistant, Supervised by Prof. Renjie Liao & Prof. Lele Wang, DSL Lab

- Innovatively engineered Frechet Video Motion Distance (FMVD), a novel metric emulating human perception, focused on evaluating motion consistency and temporal coherence in video generation
- Designed explicit motion features (motion trajectories, velocity, and acceleration) based on key-point tracking using PIPs++ model, and measured the similarity between these features via the Frechet distance
- Conducted sensitivity analyses and human studies to verify the effectiveness of FVMD by fine-tuning 3 human pose-guided video generative models; identified that FVMD scores outperform popular evaluation metrics in aligning with human judgment and distinguishing videos of different quality

Influence of Figures on Research Papers, PKU 09/2022 – 08/2023

Research Assistant, Supervised by Prof. Yi Bu, Knowledge Discovery Lab

- Implemented Yolo v2 model and ResNet-50 CNN architecture in Python, integrating computer vision techniques to automatically detect and classify visual figures from research papers, achieving 95% accuracy
- Performed sci-BERT and Named Entity Recognition (NER) model to accurately extract text features (e.g. figure abstract embeddings, Biomedical entities) for a comprehensive evaluation of the paper's content
- Performed exploratory data analysis and feature engineering to identify key figure usage features, and conducted correlation analysis to investigate the impact of scientific figures in research papers and quantify their effects on research article quality

ViT-Based Method for Predicting H&k from Receiver Functions , PKU Course project(2022)

Final project for Computer Vision Course at PKU

- Identified the potential to transform a critical geological estimation task into a computer vision task, Developed and implemented an innovative approach that combined the Vision Transformer (ViT) with a denoising network to address the task, achieving performance that surpassed traditional methods.

Skills Summary

- **Programming skills:** Proficiency in Python; Familiar with C, C++, Java, SQL, JavaScript
- **Tools and Frameworks:**Git, Docker, HuggingFace, Colab, LaTeX
- **ML Toolkits:** Scikit-Learn, PyTorch, TensorFlow