Qifeng Wu

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EDUCATION

Northeastern University **Boston, USA**
MS - Electrical and Computer Engineering, ***GPA: 3.91/4.00*** *Sept 2021 - Apr 2024*
Concentration on Computer Vision, Machine Learning and Algorithms

University of Electronic Science and Technology of China **Chengdu, China**
BEng - Communication Engineering, ***GPA: 3.63/4.00*** *Sept 2017 - Jun 2021*

University of Glasgow **Glasgow, UK**
BEng - Communication Engineering, ***GPA: 17.80/22.00*** *Sept 2017 - Jun 2021*

TECHNICAL SKILLS

Programming Languages: Python, C++, MATLAB, SQL, R
Software: VS Code, Anaconda, MS Office, Blender, Premier Pro, Audition
Operation Systems: Windows, Linux, OS X
Libraries and Tools: PyTorch, Sklearn, Pandas, Numpy, Git, Matplotlib, Gradio, Huggingface Transformers, Accelerate, Open3D, Jupyter Notbook
ML Architectures: CNN(ResNet), Transformers(LLaMA, ViT), Multi-modality Networks(CLIP, BLIP)
Cloud Platforms: AWS(EC2, S3), GCP, Azure, Digital Ocean

WORK EXPERIENCE

Student Researcher
bitHuman Inc, MA, USA *Jun 2023 - Aug 2024*

- Led the development of an AI conversational system spanning speech-to-text, LLM, text-to-speech, voice cloning, and emotional talking head synthesis.
- Curated and augmented a dataset using ChatGPT, fine-tuning/customizing the LLM with a parameter-efficient approach to optimize performance while minimizing resource usage
- Utilized an advanced neural network quantization technique to reduce parameter precision of the LLM, enhancing inference speed without sacrificing performance
- Optimized the talking head synthesis module, smoothing the transition between emotions and improving the resolution of the rendered talking head

Intern, Data Science
Liberty Mutual Insurance, MA, USA *Jan - Jun 2023*

- Developed a text-to-image and image-to-image retrieval pipeline by integrating CLIP and FAISS
- Enhanced image retrieval accuracy by extracting key information from tabular data linked to the image set, creating precise image-text pairs for fine-tuning CLIP's encoders
- Fine-tuned BLIP-2 on a claim dataset to improve image captioning and visual question-answering, leveraging the model to automate and streamline claim report generation

ACADEMIC PROJECTS

Advancing Semantic Insights with LVLMs in Challenging Vision Tasks
Northeastern University *Oct 2023 - Jan 2024*

- Collaborated in studying the limitation of existing LVM models in challenging vision tasks such as camouflaged object detection and medical image segmentation
- Implemented a training-free framework that employ GPT-4V and CogVLM to provide extra detailed prompt to improve the segmentation performance of SAM in challenging vision tasks
- Paper submitted to NIPS 2024

Knowledge Distillation from Foundation Model
Northeastern University *May - Sept 2022*

- Adopted the foundation model CLIP to supervise the training of conventional neural networks (Resnets, VGGs) designed for image classification
- Explored properties related to knowledge distillation from foundation model to conventional model
- Submitted a paper summarizing the discovery to ICLR 2023