Ji Liu

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EDUCATION

Carnegie Mellon University – School of Computer Science Pittsburgh, PA

Master of Science in Computer Vision *Dec 2020*

- **Coursework (ongoing):** Computer Vision, Machine Learning, Mathematics for Robotics.

The Hong Kong University of Science and Technology (HKUST) – School of Engineering Hong Kong, China

Bachelor of Engineering in Computer Science (CGPA: 3.7 / 4.3 – First Class Honors) *Jun 2019*

- **Academic Exchange:** Georgia Institute of Technology. (GPA**:** 4.0 / 4.0) Atlanta, GA
- **Coursework:** Graphics, Computer Animation, Algorithms, Database, Data Visualization, Cloud Computing.

RESEARCH EXPERIENCE

Pose-Guided High-Resolution Appearance Transfer via Progressive Training Hong Kong, China

HKUST – Supervisor: Prof. Chi-Keung Tang, Prof. Yu-Wing Tai (submitted to CVPR'20) *May 2018 – Nov 2019*

- Proposed and implemented from scratch in PyTorch a novel pose-guided appearance transfer network for transferring a given reference appearance to a target pose in unprecedented image resolution (1024^2), given respectively an image of the reference and target person, without using 3D information in any kind.
- Utilized dense local descriptors including local perceptual loss and local discriminators to refine details.
- Applied progressive training to autoencoder architecture and achieved unprecedented output resolution (1024^2).

Video Dialogue and Captioning Atlanta, GA

Computational Perception Laboratory at Georgia Tech – Supervisor: Prof. Irfan Essa *Jan 2018 – May 2018*

- Fine-tuned 3D Resnets pre-trained on the Kinetics dataset in PyTorch to produce a baseline on the ActivityNet dataset, achieving a validation accuracy of 40% on action recognition task.

Learning Analytics for a Personalized E-Learning Platform Hong Kong, China

WeChat-HKUST Joint Lab on AI Technology – Supervisor: Prof. Dit-Yan Yeung *Jun 2017 – Dec 2017*

- Designed and implemented a sequence-to-sequence LSTM regression system in TensorFlow to predict students' grades on E-learning platforms based on high-level representations extracted from massive user clickstream data.
- Constructed a website in JavaScript to visualize trajectories of students' grades with respect to extracted high-level representations and validated effectiveness of the LSTM model.

WORK EXPERIENCE

Tencent Youtu Lab Shenzhen, China

Research Intern – Supervisor: Prof. Yu-Wing Tai *Dec 2018 – Jan 2019*

- Developed a variant of Resnet-34 in PyTorch to evaluate quality of an automatically collected auto-driving dataset, which contained skewed, occluded and over-exposed images and reached over 98% recall and over 95% precision.
- Refined the model conversion pipeline in C++ to address difference in pooling layers between PyTorch and Caffe.

Research Intern – Supervisor: Prof. Yu-Wing Tai *May 2018 – Aug 2018*

- Extended the PyTorch implementation of Detectron to reproduce Cascade-RCNN.
- Developed a pipeline in Python and C++ to convert pre-trained research models from PyTorch to Caffe and further into SDK, addressing problems including parameter mapping and incompatibility of batch normalization layer.

PROJECT EXPERIENCE

Line Dieting Chatbot HKUST | Fall 2017

- Built a chatbot that provided meal recommendation based on user's eating habit and dieting goal in Java.
- Designed database architecture and implemented query functions for real-time data manipulation in Java.

HKUST Robomasters Team – Algorithm Developer HKUST | Spring 2017, Summer 2017

- Developed a complete PID control system on micro-controllers for a robotic vehicle with two consoles in C.
- Built a real-time UART communication protocol between micro-controllers and computers in C.

SKILLS

Programming Languages: Python, C++, Java, SQL, Matlab, JavaScript, HTML, CSS, MIPS.

Frameworks: PyTorch, TensorFlow, Caffe, Apache Hadoop, Apache Spark, WebGL.