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:** Computer Vision, Mathematics for Robotics, Machine Learning.

The Hong Kong University of Science and Technology (HKUST) – School of Engineering   Hong Kong
*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   *May 2018 – Present*
Supervised by Prof. Chi-Keung Tang and Prof. Yu-Wing Tai
- Proposed a novel pose-guided appearance transfer network that transfers an arbitrary target pose to a reference person with unprecedented image resolution (1024^2), given only an image of that person.
- Exploited autoencoder architecture to disentangle structure and appearance inherent in a reference image.
- Proposed novel local descriptors to intensify local loss back-propagation and enhance generation quality.
- Applied progressive training to autoencoder architecture and achieved unprecedented output resolution (1024^2).

Video Dialogue and Captioning   *Jan 2018 – May 2018*
Computational Perception Laboratory at Georgia Tech – Supervised by Prof. Irfan Essa
- Fine-tuned 3D Resnets pre-trained on the Kinetics dataset 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   *Jun 2017 – Dec 2017*
WeChat-HKUST Joint Lab on Artificial Intelligence Technology – Supervised by Prof. Dit-Yan Yeung
- Developed a sequence-to-sequence regression system with LSTM in Tensorflow to predict students' grades on E-learning platforms based on high-level representations extracted from massive user clickstream data.
- Built a website to visualize trajectories of students' grades with respect to extracted high-level representations. The visualization results further validated effectiveness of the LSTM model.

WORK EXPERIENCE

Tencent Youtu Lab   Shenzhen, China
Research Intern   *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. The model reached 98% recall and 95% precision.
- Refined model conversion pipeline to address difference in pooling layers between Pytorch and Caffe.

Research Intern   *May 2018 – Aug 2018*
- Extended the Pytorch implementation of Detectron to reproduce Cascade-RCNN.
- Developed a pre-trained model conversion pipeline from Pytorch to Caffe, addressing problems including parameter mapping and incompatibility of different implementations of batch normalization layer between Pytorch and Caffe.

PROJECT EXPERIENCE

Line Dieting Chatbot   HKUST | *Fall 2017*
- Built a chatbot that provided meal recommendation based on user's eating habit and dieting goal using Java.
- Designed database architecture and implemented query functions for real-time data retrieval and manipulation.

HKUST Robomasters Team – *Algorithm Developer*   HKUST | *Spring 2017, Summer 2017*
- Developed a complete PID control system for a robotic vehicle with two consoles using micro-controllers.
- Designed and implemented a real-time UART communication protocol between micro-controllers and computers.

SKILLS

Programming Languages: Python, C++, Java, SQL, Matlab, JavaScript, HTML, CSS, MIPS.
Frameworks: Pytorch, Tensorflow, Caffe, Apache Hadoop, Apache Spark, WebGL.