Qiyu Dai

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Education

- **School of Software & Microelectronics, Peking University** — **Beijing, China**
  Master Student in Computer Technology — *09/2019 - present*
  - Research interests: computer vision, deep learning.
- **School of Computer Science, Wuhan University** — **Wuhan, China**
  Double B.S. in Computer Science — *02/2017 - 07/2019*
  - GPA 3.91/4.0. Ranking top 5%.
- **School of Power and Mechanical Engineering, Wuhan University** — **Wuhan, China**
  B.S. in Energy Chemical Engineering — *09/2015 - 07/2019*
  - Ranking 1st for three years. Excellent graduate award.

Publications

- Qin Zou, Hanwen Jiang, **Qiyu Dai**, Yuanhao Yue, Long Chen, Qian Wang
  Robust Lane Detection From Continuous Driving Scenes Using Deep Neural Networks
  IEEE Transactions on Vehicular Technology, 2020

Research Experience

The STRUCT Team — **Wangxuan Institute of Computer Technology, Peking University**
Advisor: Prof. Jiaying Liu — *09/2020 - 04/2021*

- **Unaligned Fashion Translation and Manipulation**
  - Proposed a novel image translation and editing framework, enabling unaligned translation between design drafts and real fashion items, as well as image editing of an existing item via the draft.
  - Proposed an alignment and refinement network to ensure the edited image produced by the translation model closely aligns with the originally provided image: an alignment module for aligning the coarse edited image from translation model, and a user-guided inpainting module for refining the aligned edited image to obtain the ideal result.
  - Responsible for designing the editing framework. There is an extension of conference paper, going to be submitted to the journal.

The NIS&P Lab — **School of Computer Science, Wuhan University**
Advisor: Prof. Qin Zou — *10/2017 - 11/2018*

- **Lane Detection for Continuous Driving Scenes**
  - Proposed a novel segmentation algorithm for lane detection by using multiple frames of a continuous driving scene: a fully convolutional encoder-decoder for extracting and reconstructing feature map, and centered ConvLSTM for learning temporary feature propagation.
  - Collected three continuous driving scene datasets for lane detection: a huge comprehensive dataset for training, and two testsets for testing overall performance and robustness respectively.
  - Demonstrated a 98% accuracy and 220Fps speed on our dataset, especially best robustness on challenging situations, and SOTA performance on TuSimple lane dataset.

Selected Projects

- **GAN-based Automatic Iris Image Synthesis** **Peking University**
  Machine Learning course project *05/2020 - 06/2020*
  - Modeled iris image synthesis as supervised image-to-image translation to perform controllable generation via semantic label maps, and built an end-to-end system to handle batch synthesis as well as interactive editing.
  - Proposed an efficient and fast semi-automatic pipeline for pre-processing iris dataset.
  - As the team leader, responsible for technology selection, system design, code implementation, etc. Our team was awarded the *Excellent AI Algorithm Team* by Microsoft Research Asia & ByteDance Expert Committee.
- **FUTURE CAMP 2018** **TAL AI Lab**
  The talent training program *08/2018*
  - Choose from 2,500 applicants to participate in the program (Top 8%).
  - Designed a handwritten Chinese text detection algorithm based on CTPN model and a video motion analysis algorithm based on 3D-ResNets model, which won the *Excellent Project Award*.
  - Built a complete end-to-end system for handwritten Chinese text detection and recognition, enabling to convert handwritten Chinese text on photos into editable messages, based on the project above.

Skills

- **Languages:** Mandarin Chinese (Native), English (CET-6)
- **Programing Languages:** Python, C/C++
- **Tools:** PyTorch, TensorFlow2, OpenCV3, LaTeX

Awards and Honors

- **Merit Student Award**, Peking University, 2020
- **Excellent Graduate**, Wuhan University, 2019
- **The Beijing CM Scholarship**, Wuhan University, 2018
- **The Goaland Scholarship**, Wuhan University, 2017
- **Merit Student Award**, Wuhan University, 2017
- **The Cnhili Scholarship**, Wuhan University, 2016
- **The Relations Instruments Scholarship**, Wuhan University, 2016
- **Excellent Student Award**, Wuhan University, 2016, 2018
- **Excellent Student Scholarship**, Wuhan University, 2016, 2017, 2018