Zhanke Zhou

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RESEARCH INTERESTS

- Computer Vision
- Parallel Computing
- Reinforcement Learning

EDUCATION

- **Huazhong University of Science and Technology (HUST)** — Wuhan, China
  Bachelors of Electronic Information Engineering; GPA: 3.8/4.0 — *Sep. 2017 – Present*

RESEARCH EXPERIENCE

- **Titan OS Inc.** — Wuhan, China
  Research Intern, advised by Hao Tu — *Jul. 2019 – Aug. 2019*
  - **TextBox**: Apply single-shot oriented scene text detector TextBoxes++ to handle the task of scene text detection.
    * Train text detector and text recognizer jointly and make it become an end-to-end training process, hence not only boost the training speed but also bring promotion in accuracy of detection as well as recognition.
    * Employ NVIDIA TensorRT, which is a platform for high-performance deep learning inference, to increase the inference speed at the cost of lower the accuracy a little bit.
    * Research Content: Scene text recognition, Neural Network Quantization.

- **Dian Group, HUST** — Wuhan, China
  Quality Team Leader, advised by Yayu Gao, Chengwei Zhang and Xiaojun Hei — *Mar. 2018 - Present*
  - **RLCR**: Adopt Reinforcement Learning Technology in Cognitive Radio.
    * Propose an optimized Q-learning based cognitive radio spectrum allocation. strategy, and demonstrate that this strategy enable system to learn from environment and avoid channel collision effectively. A paper submitted to SIMUTOOLS 2020.
    * Research Content: Reinforcement Learning, Cognitive Radio, Spectrum Allocation.
  - **Intelligent Transportation System**: Integrate latest methods in Computer Vision to solve the problem of judging vehicles violate traffic rules.
    * Employ object detector e.g. YOLO and Mask RCNN to detect the vehicles and their license plates in given images.
    * Propose a branched, spatio-temporal convolution neural network, named SLDNet, to recognize these violation acts from photographs captured by surveillance cameras. A paper submitted to ICTC 2020. Work in progress.
    * Research Content: Object Detection, Semantic Segmentation, Sequence Image Classification, Action Recognition.
  - **Lightning Location System**: Parallel acceleration of lightning location algorithm.
    * Optimize lightning location algorithm for higher accuracy, and use CUDA to parallels the algorithm.
    * Achieve over 500 times of acceleration with computing power of GPUs. Work in progress.
    * Research Content: Parallel Computing, NVIDIA CUDA.

SELECTED AWARDS

1. 2018 Individual Self-improvement Scholarship of HUST
2. 2019 Honorable Mention in Professional training of HUST (2/53)
3. 2019 Finalist in Jiaozi Cup Xinwang Bank Financial Challenge (Lip reading in vedio, 16/765)

PUBLICATIONS

1. **Zhanke Zhou***, Ruiqi Li*, Yayu Gao, Chengwei Zhang, Xiaojun Hei. SLDNet: A Branched, Spatio-Temporal Convolution Neural Network for Detecting Solid Line Driving Violation in Intelligent Transportation Systems. Submitted to ICTC 2020.
2. Lianghui Zhu*, **Zhanke Zhou***, Zhaochuan Peng*, Xiaojun Hei. Optimized Q-Learning Based Spectrum Allocation Strategy in Cognitive Radio. Submitted to SIMUTOOLS 2020.

SKILLS SUMMARY

- **Skills**: Computer Vision, Deep Learning, Reinforcement Learning
- **Programming Languages & Tools:**: Python, C/C++, LaTex, PyTorch, Tensorflow
- **Foreign Languages**: Chinese (native), English (TOEFL(IBT): 91)