Chen Wei

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EDUCATION

School of Electronics Engineering and Computer Science, Peking University   **Beijing, China**

Bachelor of Computer Science   *Sep. 2015-Jul. 2019 (expected)*

- GPA: 3.57/4.0
- Course Highlights
  - Math Related: Advanced Mathematics (99.5) | Linear Algebra (95)
  - Computer System Related: Computer Organization (94) | Operating Systems (93) | Introduction to Computer Networks (93)
  - Computer Vision Related: Fundamentals of Digital Media Technology (94)
- Standardized Test
  - TOEFL: 108 (Reading 30 / Listening 30 / Speaking 22 / Writing 26)
  - GRE: 323 (Verbal 154 / Quantitative 169 / Analytical Writing 3.5)
- Technical Skills
  - Programming Language: Python, C/C++, Matlab, Java
  - Deep Learning Framework: Tensorflow, CAFFE
- Awards
  - Founder Scholarship, Founder Group, 2018
  - Merit Student, Peking University, 2016, 2018 (top 10%)
  - National Scholarship, Ministry of Education of China, 2016 (top 4%)

PUBLICATIONS

* indicates equal contributions

- **Chen Wei***, Wenjing Wang*, Wenhan Yang and Jiaying Liu. "Deep Retinex Decomposition for Low-Light Enhancement", *Proc. of British Machine Vision Conference (**BMVC**)*, Newcastle, U.K., Sep. 2018. (**Oral**)
- Wenjing Wang*, **Chen Wei***, Wenhan Yang, Jiaying Liu. "GLADNet: Low-Light Enhancement Network with Global Awareness", *Proc. of IEEE International Conference on Automatic Face & Gesture Recognition (**FG**)*, Xi'an, China, May 2018.

INTERNSHIP EXPERIENCES

Institute of Computer Science and Technology, Peking University   **Beijing, China**

Research intern, supervised by Prof. Jiaying Liu   *Apr. 2017-Sep. 2018*

Deep learning methods for the inverse problem of image restoration

- Proposed a deep network for **low-light enhancement**. As an effective tool for low-light enhancement, Retinex model assumes that images can be decomposed into reflectance and illumination. Without any ground-truth, our Retinex-Net can learn to decompose a natural image with only key constraints including the consistent reflectance shared by paired low/normal-light images, and the smoothness of illumination. The decomposition results are better than previous hand-crafted models, which lead to better low-light enhancement results. We built a low-light image dataset, which consists of paired low-light and normal-light images captured in real scenes for network training. In September 2018, I provided an oral presentation on *BMVC 2018* for our paper *"Deep Retinex Decomposition for Low-Light Enhancement"* .
- Proposed a global illumination-aware and detail-preserving network for **low-light enhancement**, which first down-samples the input to a fixed size to make the receptive field cover the whole image and obtain a global illumination prediction, and then reconstruct the details with several convolutional layers. Our paper *"GLADNet: Low-Light Enhancement Network with Global Awareness"* was presented on *FG Workshop 2018*.

Center for Image Science, Johns Hopkins University   **Baltimore, U.S.**
Research intern, supervised by Prof. Alan Yuille   *Jul. 2018-Sep. 2018*
Self-supervised visual representation learning

- Focused on visual representation learning in an **self-supervised** manner. We are trying to achieve this goal by enforcing neural networks to learn from spatial contexts. Without heavy burden of human annotation, each training image is turned into a jigsaw puzzle, in which the image is cut into pieces and the pieces are disordered spatially. The network must resume these pieces into the correct configuration. After training such a model solving jigsaw puzzles, we can transfer the learned features into other general visual recognition tasks, such as classification, detection and segmentation, by initialization. In our experiments, the networks initialized by jigsaw puzzle models for visual recognition tasks can enjoy a major benefit, comparing with training from scratch. We are also trying to provide performance boost for medical image analysis by using such a self-supervised method. The project is still continuing.

Beijing Office, Google   **Beijing, China**
Full-time engineering practicum intern   *Jul. 2017-Sep. 2017*
A comparison tool for Google online product, Pagespeed Insights

- Pagespeed Insights (PSI) is a Google online tool that analyzes web sites and rates their performance. I implemented **a development tool in C++** for PSI, which gathers the scores for a large sample URL set rated by two versions of PSI, so as to evaluate the optimized rating system for its rationality, validity and stability. The tool is designed in a parallel, distributed manner as a Map/Reduce job, so as to exploit the massive computing groups of Google, which can reduce the runtime from dozens of days in a sequential manner to around four hours in a parallel manner. I also designed a web page which can provide more friendly user interface, automatically save evaluation results, and query evaluation history.

SELECTED COURSE PROJECTS

Design of Scheme for Face Recognition on Surveillance Video   *Sep. 2017-Dec. 2017*
Course project for *Fundamentals of Digital Media Technology*

- Constructed a framework with face detection, face alignment and face recognition on each frame of surveillance video. The face detection model is based on *Faster R-CNN*, the face aligment model is based on *Face Alignment Network (FAN)*. For each aligned face, *FaceNet* is used to extract features for classification.

Implementation of Network for Face Gender Recognition   *Mar. 2017-Jun. 2017*
Course project for *Algorithm Design and Analysis*

- Implemented a CNN network redesigned from classic *AlexNet* for Face Gender Recognition on dataset *IMDB-WIKI*.

EXTRACURRICULAR ACTIVITIES

Mountaineering Association of Peking University   *Sep. 2015-Jun. 2018*
Member of presidium

- This is the first and still the largest student organization for mountaineering and hiking in China. I am proud to be familiar with outdoor skills and have been to most hiking routes near Beijing. In summer of 2016, we carried out an **high altitude scientific expedition** about life custom of Tibetans in Yushu, Qinghai Province, the source of the Yellow River.

PKU Youth Newspaper   *Sep. 2015-Jun. 2016*
Chief editor of character report

- As an editor of character column, I had to gather materials about my character, conduct an interview, organize what I heard and write a vivid report. I have reported many characters in different areas, including respected professors, successful business men and students with innovative ideas.