Dejia Xu

@ir1d

Yiheyuan Road 5th
Peking University, Beijing
✉ *sirius.caffrey@gmail.com*
↳ *https://github.com/ir1d*

Education

2017 – present	School of Electronics Engineering and Computer Science, Peking University (PKU), Beijing.

Selected Awards

2020	Peking University, Academic Excellence Award
2020	CVPRW NTIRE Challenge Image Demoireing Burst Track, Winner
2020	CVPRW NTIRE Challenge Image Demoireing Single Image Track, Runner-up Award
2020	CVPRW NTIRE Challenge Image Deblurring Desktop Track, Runner-up Award
2015, 2016	National Olympiad in Informatics, Bronze medal
2016	National Olympiad in Informatics Winter Camp, Silver medal

Research Experience

2020.7 - now — Peking University and Megvii Technology Inc.
Research Intern. Advised by Prof. Boxin Shi(PKU) and Jiangyu Liu(Megvii).
- **Single Image Reflection Removal:** Proposed augmented cycle consistent strategy and adaptive kernel estimation for realistic reflection removal.

2020.2 - now — CyLab, Electrical and Computer Engineering, Carnegie Mellon University
Research Intern. Advised by Zhiqiang Shen and Prof. Marios Savvides.
- **Knowledge Distillation:** Clarifying a recently discovered perspective that label smoothing is incompatible with knowledge distillation.

2018.7 - 2019.12 — Spatial and Temporal Restoration, Understanding and Compression Team, WICT, PKU
Research Intern. Advised by Prof. Jiaying Liu.
- **Single Image Deraining:** Proposed Fractal Band Learning with self-supervision strategy, improved PSNR by 1.74dB on Rain100L and by 0.64dB on Rain800 compared to baseline (RESCAN, RWL). [Github].
- **Joint Inpainting and Colorization:** Adopted Gated Convolution based UNet which effectively restores old photos. [Github].
- **Low-light Enhancement and Face Detection:** Proposed a new benchmark for low-light enhancement and a SOTA model (+2.1 mAP) for face detection in low-light environment. [Project].

Internship

2020.1 - now — Megvii Technology Inc.
Research Intern. Advised by Jiangyu Liu.
- **Eyeglass Reflection Removal:** Refined occlusion segmentation module and error protection classifier for the eyeglass reflection removal pipeline which landed in recent smartphones including NOVA 7.

2020.6 - 2020.7 — DeeCamp, Sinovation Ventures Inc.
- Deep learning based program repair product for online programming course.

2020.6 -	Tensorflow, Google Summer of Code.
2020.8	Intern, Mentored by Jaeyoun Kim and Mandar Deshpande.

○ Implement Generative Inpainting (ICCV'19) and Learning to see in the dark (CVPR'18) with Tensorflow 2 for Tensorflow Model Garden.

Preprints and Publications

[1] **Dejia Xu**, Wenhan Yang, Minhao Fan, Jiaying Liu. "Benchmarking Low-Light Image Enhancement and Beyond", *IJCV*, to appear in 2021.

[2] Wenhan Yang, Shiqi Wang, **Dejia Xu**, Xiaodong Wang and Jiaying Liu. "Towards Scale-Free Rain Streak Removal via Self-Supervised Fractal Band Learning", *Proc. AAAI Conf. on Artificial Intelligence*, 2020.

[3] **Dejia Xu**, Yihao Chu, Qingyan Sun. "Moiré Pattern Removal via Attentive Fractal Network Pattern Removal via Attentive Fractal Network", *CVPRW*, 2020.

[4] "NTIRE 2020 Challenge on Image Demoireing: Methods and Results", *CVPRW*, 2020.

[5] "NTIRE 2020 Challenge on Image and Video Deblurring", *CVPRW*, 2020.

[6] "AIM 2020 challenge on real image super-resolution: Methods and results", *ECCVW*, 2020.

[7] "AIM 2020 challenge on image extreme inpainting", *ECCVW*, 2020.

[8] Zhiqiang Shen, Zechun Liu, **Dejia Xu**, Zitian Chen, Kwang-Ting Cheng, Marios Savvides. "Is Label Smoothing Truly Incompatible with Knowledge Distillation: An Empirical Study", *submitted to ICLR*, 2021.

[9] **Dejia Xu**, Haoning Wu, Yu Han. "Stereo Image Super Resolution via StereoScopic Guidance Network", *submitted to CVPR*, 2021.

Service

2020.7 -	**Mentor, Open Source Promotion Plan, Institute of Software, Chinese Academy of Sciences**
2020.9	○ Mentored the development of the toolchain which exports markdown to LaTeX and lints customized markdown syntax. [Github].

○ Guided the development and refinement of documentation. [Github].

2018.7 -	**Organizer, UG2+ Challenge, CVPR 2019**
2019.9	○ Co-organized the workshop and challenge: "Bridging the Gap between Computational Photography and Visual Recognition (UG2+)". [Website].

2018.4 - now	**Chair, PKU Student Association of Algorithms**

○ Maintained the OI Wiki project and its ecosystem, which aims to share knowledge about competitive programming. [Github].

○ Co-organized the 2018 ICPC World Final and ICPC Asia Beijing Regional. [Website].

Selected Projects

1 An elegant website for OI Wiki, written in Typescript with React and GraphQL. [Github].

2 Collaborated in the development of pytorch-lightning (a lightweight PyTorch wrapper for ML researchers). [Github].

3 Maintained hosts file (for IPv4 Google access in mainland China) for academic use. [Github].

4 Website for Student Association of Science and Technology in PKU to manage contestants and volunteers, written in Node.js with Express.js. [Github].

5 Telegram bot for Ingress players to query mission details, written in Node.js with MongoDB. [Project].