Junpeng Jing

Curriculum Vitae

Beihang University, C.N.
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Final-year Master Student

BIOGRAPHY

2022.5 – Present
- **Research Intern**, *IS Group*, MEGVII Technology (also known as Face++, in July, 2016).
  - Topics: **Stereo Matching**
  - Advisor: Researcher Jiankun Li and Leader Jiangyu Liu

2020.9 – Present
- **Master**, *Dept. of Cyber Science and Technology*, Beihang University, C.N..
  - GPA: 3.85/4.0 (1/26)
  - Group: Multimedia Computing Towards Communications (MC2 Lab)
  - Topics: **Image Hiding**, **Compression**, **Stereo Image Super-resolution**
  - Advisor: Prof. Zhenyu Guan, Prof. Mai Xu and Dr. Xin Deng

2016.9 – 2020.7
- **Bachelor**, *Dept. of Electronic Information Engineering*, Beihang University, C.N..
  - GPA: 3.58/4.0

RESEARCH INTERESTS

Image Hiding, Stereo Image Process (Matching, Super-resolution)

PUBLICATIONS

The publications are also listed in my *Google Scholar Page*.

[1] Zhenyu Guan[1], **Junpeng Jing**[1] (co-first author), Xin Deng, Mai Xu, Lai Jiang, Zhou Zhang, Yipeng Li. *DeepMIH: Deep Invertible Network for Multiple Image Hiding.* IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**, IF=24.314), 2022. (*Paper*) (*Code*)

[2] **Junpeng Jing**, Xin Deng, Mai Xu, Jianyi Wang, Zhenyu Guan. *HiNet: Deep Image Hiding by Invertible Network.* Proceedings of the IEEE/CVF International Conference on Computer Vision (**ICCV**), 2021. (*Paper*) (*Code*)

PATENT

[1] Xin Deng, **Junpeng Jing**, Zhenyu Guan, Mai Xu, Dawei Li. *An Image Hiding Technology and Method.* C.N. 202011290006.9

RESEARCHES

Researches on Image Hiding

2020.7 – 2020.12
- **HiNet: Deep Image Hiding by Invertible**, ICCV2021.
  - Main works:
    - We propose a novel image hiding network, namely HiNet, based on invertible neural network for the task of large-capacity image hiding.
    - We design two concealing and revealing modules with differentiable and invertible property, aiming to make the image hiding process fully reversible.
    - We propose a low-frequency wavelet loss to control the distribution of secret information in different frequency bands, which significantly improves the hiding security.

2021.1 – 2022.1 **DeepMIH: Deep Invertible Network for Multiple Image Hiding**, TPAMI2022.

- Main works:
  - We propose a novel invertible multiple image hiding framework, to hide multiple secret images into the same cover image in a new manner.
  - We investigate two important findings about image hiding, which lay great foundations for the network and loss function design for multiple image hiding.
  - We propose an importance map module to guide the current image hiding with the results of previous image hiding, to fully utilize the hiding potential of cover image.
  - We develop a new multi-stage training strategy with the designed stage losses, to improve the training stability and the performance of multiple image hiding.

Researches on Stereo Image Process

2022.1 – 2022.4 **StereoSRT: A Stereo Image Super-Resolution Transformer**, NTIRE2022 Challenge.

- Main works:
  - We propose a transformer based architecture for stereo image super-resolution, simultaneously leverage the self and cross information between stereo image pairs.
- We got the 6-th place at NTIRE 2022 Challenge on Stereo Image Super-resolution, 2022 (CVPR Workshop)

2022.5 – Present **CREStereo++: An Enhanced Version for Stereo Matching**, RVC2022.

- Main works: We proposed an enhanced version of CREStereo, which achieves better performance.
- In preparing for the Robust Vision Challenge 2022.

SCHOLARSHIPS

2022 Top-10 Graduate Students ***Top 0.5%, 10,000¥***
– Highest honor of the postgraduate in BUAA

2021 National Scholarship ***Top 1%, 20,000¥***
– Directly Awarded by the National Ministry of Education

2021 Postgraduate Academic Scholarship ***1st Prize, 7,500¥***

2020 Postgraduate Academic Scholarship ***2nd Prize, 5,000¥***

2017 Science and Technology Scholarship of Beihang University ***2nd Prize, 1,000¥***

HONORS & AWARDS

2021 Outstanding Graduate Student ***Top 5%***

2021 Merit Student ***Top 5%***

2019 National College-student Electronics Design Contest ***1st Author & 2nd Prize***

2019 29^{th} Fengru Cup "Nokia" Innovation Contest ***1st Author & 2nd Prize***

2018 Beijing College-student Electronics Design Contest ***1st Author & 2nd Prize***

2018 COMAP's Mathematical Contest in Modeling ***Honorable Winner***

2017 27^{th} "Feng Ru Cup" Competition of Innovation ***1st Author & 3rd Prize***

PROJECTS

2018 – 2019 National College Student Innovation and Entrepreneurship Training Program
– Autonomous Tracking UAV Based on Deep Learning ***1st Author***

SKILLS

Programming: Matlab, Python (PyTorch)

Word processing: LaTeX, Microsoft Office, Adobe Illustrator
Languages: Chinese, English (CET-4 CET-6, IELTS)
Daily-Hobbies: Bodybuilding, Basketball, Chess