Shen Zheng

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Education

Carnegie Mellon University — Aug. 2022 — Dec. 2023
Master of Science in Computer Vision (MSCV), GPA 4.000/4.333 — *Pittsburgh, PA*
- Coursework: Computer Vision (A+), Math Fundamentals for Robotics (A), Machine Learning (A-)

Wenzhou-Kean University — Sep. 2017 — Jun. 2021
Bachelor of Arts in Mathematical Sciences, GPA 3.800/4.000, Major GPA: 3.944/4.000 — *Wenzhou, China*
- Coursework: Numerical Analysis, Statistical Data Mining, Computer Organization & Programming, etc.

Skills

Programming Languages: Python, R, Java, HTML, C++, Matlab, Mathematica, Shell, LaTeX, Markdown
Frameworks & Platforms: Pytorch, TensorFlow, Keras, Ubuntu, Docker, Git, ONNX, CUDA
Libraries: Scikit-Learn, SciPy, NumPy, OpenCV, Matplotlib, Pandas
Reviewers: CVIP 2021, CVIP 2022, AAAI 2022, WACV 2023, IEEE TNNLS

Experiences

Carnegie Mellon University — Dec. 2022 - Present
MSCV Capstone — Advisor: Dr. Srinivasa Narasimhan — *Pittsburgh, PA*
- Topics: Image-to-Image Translation; Image Deraining; Object Detection; Autonomous Driving.
- Analyze object detection and image deraining algorithms under rain streaks & drops & mists and road reflections.
- Conduct image-to-image translation with UNIT using unpaired rainy and clear images (Yolov3 mAP: +198.18%).

Wenzhou-Kean University — Dec. 2020 – July. 2022
Research Assistant — Advisor: Dr. Gaurav Gupta — *Wenzhou, China*
- Topics: Restoration; Enhancement; Generation; Object Detection; Semantic Segmentation; Domain Adaptation.

Momenta — Sep. 2021 – Feb. 2022
Computer Vision Engineer — Director: Dr. Wangjiang Zhu — *Suzhou, China*
- Responsible for long-tailed data augmentation, data auto-labeling and cleaning, and model evaluation.
- Implemented CycleGAN to convert traffic light bulbs from left arrow to leftUturn arrow (acc: 78.41% → 87.27%).
- Constructed an auto-labeler using quantized VoVNet, filtering 14,618 incorrect annotations from 1,160,513 frames.

University of Notre Dame — Sep. 2021 – Feb. 2022
Research Assistant— Advisor: Dr. Chaoli Wang — *Remote*
- Topic: Implicit Neural Representation for Isosurface Rendering.
- Constructed a FCN with Siren activation function to render isosurfaces with resolution, viewpoint, and isovalue.
- Obtained a top score in PSNR/SSIM/MSE (27.87/0.963/0.002) with only 162 training images.

Publications

- **Shen Zheng**, Yiling Ma, Jinqian Pan, Changjie Lu, and Gaurav Gupta (2023), "Low-light Image and Video Enhancement: A Comprehensive Survey and Beyond". Under Review at **TIP**.
- **Shen Zheng**, Jinqian Pan, Changjie Lu, and Gaurav Gupta (2022), "PointNorm: Dual Normalization is All You Need for Point Cloud Analysis". Under Review.
- Changjie Lu, **Shen Zheng**, Zirui Wang, Omar Dib, and Gaurav Gupta (2022), "AS-IntroVAE: Adversarial Similarity Distance Makes Robust IntroVAE". **ACML**.
- Changjie Lu, **Shen Zheng**, and Gaurav Gupta (2022), "Unsupervised Domain Adaptation for Cardiac Segmentation: Towards Structure Mutual Information Maximization". **CVPRW**.
- **Shen Zheng** and Gaurav Gupta (2022), "Semantic-Guided Zero-Shot Learning for Low-Light Image/Video Enhancement". **WACV**.
- **Shen Zheng**, Changjie Lu, Yuxiong Wu, and Gaurav Gupta (2022), "SAPNet: Segmentation-Aware Progressive Network for Perceptual Contrastive Deraining". **WACV**.
- **Shen Zheng**, Yuxiong Wu, Shiyu Jiang, Changjie Lu, and Gaurav Gupta (2021), "Deblur-YOLO: Real-Time Object Detection with Efficient Blind Motion Deblurring", **IJCNN** (Oral).