FAN JIA

fan.jia@utah.edu
Room 2614, Warnock Engineering Building, University of Utah

RESEARCH INTERESTS

Image Processing, Machine/Deep Learning, Applied Mathematics, Data Science

EDUCATION

Hong Kong Baptist University *Sept. 2017 - Nov. 2021*
Ph.D in Mathematics
Thesis: Regularized Neural Networks for Semantic Image Segmentation
Advisor: Prof. Xue-Cheng TAI

University of Chinese Academy of Sciences *Sept. 2013 - July 2016*
Master in Computer Engineering
Advisor: Dr. Gongyan LI

Shandong University *Sept. 2009 - July 2013*
Bachelor in Computer Science

EMPLOYMENT

University of Utah *July. 2024 - now*
Last Position Held: Postdoctoral Research Associate
Advisor: Prof. Bao Wang

The Chinese University of Hong Kong *Nov. 2021 - June, 2024*
Last Position Held: Postdoctoral Fellow
Advisor: Prof. Tieyong ZENG

LENZTECH *July. 2016 - August. 2017*
Last Position Held: Senior Image Processing Engineer

SKILLS

Python, MATLAB, C++, GPU Programming

AWARDS

The Third Prize in the Challenge on Segmentation of Pancreatic CT Images in The 3rd International Symposium on Image Computing and Digital Medicine (ISICDM) *2019*

Best Paper Nomination Award in The 3rd International Symposium on Image Computing and Digital Medicine (ISICDM) *2019*

PUBLICATIONS

1. Fan Jia, Tiange Wang, and Tieyong Zeng. Low-light Image Enhancement via Dual Reflectance Estimation. *Journal of Scientific Computing* 98.2 (2024): 36.
2. Fan Jia, Shen Mao, Xue-Cheng Tai, and Tieyong Zeng. A Variational Model for Non-uniform Low-light Image Enhancement. *SIAM Journal on Imaging Sciences* 17.1 (2024): 1-30.

3. Fan Jia, Hok Shing Wong, Tiange Wang, and Tieyong Zeng. A Reflectance Re-weighted Retinex Model for Non-Uniform and Low-Light Image Enhancement. *Pattern Recognition* 144 (2023): 109823.

4. Fan Jia, Shen Mao, Zijian Huang, and Tieyong Zeng. Detachable Image Decomposition and Illumination Mapping Search for Low-Light Image Enhancement. *Journal of Computational and Applied Mathematics* 436 (2024): 115435.

5. Fan Jia, Wing Hong Wong, and Tieyong Zeng. DDUNet: Dense Dense U-Net with Applications in Image Denoising. *Proceedings of the IEEE/CVF International Conference on Computer Vision Workshop* (2021).

6. Fan Jia, Liyan Ma, Yijin Yang, and Tieyong Zeng. Pixel-Attention CNN with Color Correlation Loss for Color Image Denoising. *IEEE Signal Processing Letters* 28 (2021): 1600-1604.

7. Fan Jia, Jun Liu, and Xue-Cheng Tai. A Regularized Convolutional Neural Network for Semantic Image Segmentation. *Analysis and Applications* 19.01 (2021): 147-165.

8. Fan Jia, Xue-Cheng Tai, and Jun Liu. Nonlocal Regularized CNN for Image Segmentation. *Inverse Problems & Imaging* 14.5 (2020): 891.

9. Fan Jia, and Xue-Cheng Tai. Regularized UNet for Automated Pancreas Segmentation. *In Proceedings of the Third International Symposium on Image Computing and Digital Medicine* 2019 Aug 24 (pp. 113-117).

SUBMISSION AND WORKING PAPER

1. Robust Projective Nonnegative Matrix Factorization. *In Revision.*

2. Towards Simulitaneous lmage Enhancement and Mixed Noise Removal: Integration of PnP Denoisers in a Variational Mode *Ready for Submission.*

3. Effective Solutions to Robust Orthogonal Nonnegative Matrix Factorization via Oblique Manifold Transformation *Ready for Submission.*

4. Heterogeneous Denoising Diffusion Probablitics Model (HDDPM) with Application to Low-light Image Enhancement. *In Progress.*

INVITED TALK

Model Design, Application and Extension for Image Enhancement under Abnormal Lighting Conditions
–Wuhan University, China, Oct, 2023.

From Variationl Methods to Deep Learning: Model Design with Application to Low-light Image Enhancement
–Nankai University, China, Oct, 2022.

Deep Learning Segmentation Techniques in Abdominal CT Scans
–The Third International Symposium on Image Computing and Digital Medicine (ISICDM 2019), China, Aug, 2019.

TEACHING EXPERIENCE

Hong Kong Baptist University

- Teaching Assistant, MATH1025: Understanding Mathematics and Statistics *Spring, 2020*
- Teaching Assistant, MATH2207: Linear Algebra *Fall, 2019*
- Teaching Assistant, MATH1007: Delicate Mathematics *Spring, 2019*

- Teaching Assistant, MATH2207: Linear Algebra *Fall, 2018*
- Teaching Assistant, MATH3405: Ordinary Differential Equation *Spring, 2018*
- Teaching Assistant, MATH2207: Linear Algebra *Fall, 2017*

RESEARCH EXPERIENCE

The Chinese University of Hong Kong *Hong Kong*

- Nonnegative Matrix Factorization
- Variational methods in image processing tasks
- Variational-inspired deep learning methods

Hong Kong Baptist University *Hong Kong*

- Regularized neural network for image segmentation
- CNN methods for medical image segmentation

LENZTECH *Beijing,China*

- Image classification and dense object detection in retail stores
- Deep learning methods in high-level computer vision tasks

University of Chinese Academy of Sciences *Beijing,China*

- Digital image processing
- Intelligent robot iterative inspection system in substation