Yunlong Meng

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Education

The Chinese University of Hong Kong 2014 ∼ 2019
Ph.D in Mechanical and Automation Engineering *Hong Kong SAR, China*

- Thesis: Fast Structured Illumination for High-resolution Fluorescence Imaging
- GPA: 3.65/4.0

Huazhong University of Science and Technology 2011 ∼ 2014
Master of Engineering *Wuhan, China*

- Thesis: Automatic Cell-counting algorithm development for Nissl-stained mouse brain images
- GPA: 3.45/4.0

Huazhong University of Science and Technology 2007 ∼ 2011
Bachelor of Engineering *Wuhan, China*

- Thesis: Cross-platform microscopic optical image preprocessing program development
- GPA: 3.62/4.0 | Rank: 12/137

Research Areas

Computer Vision and Image Processing

- Generative adversarial networks
- Image-to-image translation
- Cross-domain object detection
- Medical image analysis

Optics

- Computational imaging / Computational photography
- Strucutred light illumination

Working Experience

Shanghai Em-Data Technology Co., Ltd. Jan 2022 ∼ Present
Principal Research Scientist *Shanghai, China*

Shanghai Em-Data Technology Co., Ltd. May 2019 ∼ Jan 2022
Researcher *Shanghai, China*

Projects

Cross domain object detection and instance segmentation July 2020 ∼ Present

- Few-shot unsupervised image-to-image translation for few-shot cross-domain object detection and instance segmentation
- Multimodal image-to-image translation for cross domain object detection
- Patch pyramid dual contrastive learning image-to-image translation for cross domain object detection

Generative adversarial networks and image-to-image translation January 2020 ∼ Present

- Multimodal image-to-image translation
- Few-shot unsupervised image-to-image translation

Video prediction May 2019 ∼ October 2019

- Radar echo maps video prediction

Visibility prediction September 2019 ∼ February 2020

- Multistep LSTM for visibility prediction

Super-resolution structured illumination June 2016 ∼ December 2018

- Super-resolution structured illumination with reduced raw structured images

Temporal focusing microscopy October 2014 ∼ December 2018

- Fast two-snapshot structured illumination for temporal focusing microscopy with enhanced axial resolution and signal-to-noise ratio

Cell detection and segmentation December 2011 ∼ May 2014

- Automatic cell detection and segmentation
- Concave points clustering and random walker based cell detection and segmentation

Publications

Journal Publications

- Chen, Jialong, Songyun Gu, **Yunlong Meng**, Zhiqiang Fu, and Shih-Chi Chen. *"Holography-based structured light illumination for temporal focusing microscopy."* Optics Letters 46, no. 13 (2021): 3143-3146.
- Lin, Wei, Dongping Wang, **Yunlong Meng**, and Shih-Chi Chen. *"Multi-focus microscope with HiLo algorithm for fast 3-D fluorescent imaging."* Plos one 14, no. 9 (2019): e0222729.
- **Yunlong Meng**, Wei Lin, Chenglin Li, and Shih-chi Chen. *"Fast two-snapshot structured illumination for temporal focusing microscopy with enhanced axial resolution."* Optics Express 25, no. 19 (2017): 23109-23121.
- Dongping Wang, **Yunlong Meng**, Dihan Chen, Yeung Yam, and Shih-Chi Chen. *"High-speed 3D imaging based on structured illumination and electrically tunable lens."* Chinese Optics Letters 15, no. 9 (2017): 090004. (Invited paper)
- Yong He$^+$, **Yunlong Meng**$^+$, Hui Gong, Shangbin Chen, Bin Zhang, Wenxiang Ding, Qingming Luo, and Anan Li. *"An automated three-dimensional detection and segmentation method for touching cells by integrating concave points clustering and random walker algorithm."* PLoS One 9, no. 8 (2014): e104437. ($^+$Co-first author)
- Wenxiang Ding, Anan Li, Jingpeng Wu, Zhongqing Yang, **Yunlong Meng**, Simin Wang, and Hui Gong. *"Automatic macroscopic density artefact removal in a Nissl-stained microscopic atlas of whole mouse brain."* Journal of Microscopy 251, no. 2 (2013): 168-177.

Conference publications

- **Yunlong Meng**$^+$, Lifan Zhao$^+$, and Lin Xu. *"Unsupervise Image-to-Image translation with Patch Pyramid Dual Contrastive Learning for Cross Domain Detection."* ICME 2022 ($^+$Co-first author)
- Lifan Zhao$^+$, **Yunlong Meng**$^+$, and Lin Xu. *"OA-FSUI2IT: A Novel Few-Shot Cross Domain Object Detection Framework with Object-Aware Few-Shot Unsupervised Image-to-Image Translation."* AAAI 2022 ($^+$Co-first author)
- **Yunlong Meng**, Fengliang Qi, Heng Zuo, Bo Chen, Xian Yuan, and Yao Xiao. *"Multi-step LSTM prediction model for visibility prediction."* IJCNN 2020
- **Yunlong Meng**, Wei Lin, Jialong Chen, Chenglin Li, and Shih-Chi Chen. *"Fast Two-snapshot Structured Illumination for Wide-field Two-photon Microscopy with Enhanced Axial Resolution and Signal-to-noise Ratio."* CLEO 2019
- **Yunlong Meng**, Yong He, Jingpeng Wu, Shangbin Chen, Anan Li, and Hui Gong. *"Automatic detection and quantitative analysis of cells in the mouse primary motor cortex."* PIBM 2014
- **Yunlong Meng**$^+$, Lifan Zhao$^+$, and Lin Xu. *"Diversity Augmented Conditional Generative Adversarial Network for Enhanced Multimodal Image-to-Image Translation."* ACCV 2022 in submission ($^+$Co-first author)

Patents

- Shih-Chi Chen, **Yunlong Meng**, and Jialong Chen. *"Method for data acquisition and image processing for reconstructing a super-resolved image."* U.S. Patent 10,909,701, issued February 2, 2021.

Presentations

- **Yunlong Meng**, Yina Chang, Wei Lin, and Shih-Chi Chen, *"Super-resolution temporal focusing microscopy via multifocal structured illumination"*, SPIE Photonics West 2018, San Francisco, United States, January 27 – Febuary 01, 2018
- **Yunlong Meng**, Wei Lin, and Shih-Chi Chen, *"Fast two-snapshot structured illumination for temporal focusing microscopy with enhanced axial resolution"*, SPIE Photonics West 2018, San Francisco, United States, January 27 – Febuary 01, 2018

Awards

Professional Excellence Award — January 2021
Shanghai Em-Data Technology Co., Ltd. — *Shanghai, China*

Shanghai Pujiang Program — October 2020
Science and Technology Commission of Shanghai Municipality — *Shanghai, China*

Outstanding undergraduate graduate — June 2011
Huazhong University of Science and Technology — *Wuhan, China*

Winner of the 2014 Computational Biology Research Proposal Competition — April 2014
Awarder: Prof. Qing Nie (Dept. of mathematics, UC Irvine) — *UC Irvine*

Excellent Academic Scholarships — September 2009
Huazhong University of Science and Technology — *Wuhan, China*

Excellent Sports Scholarships — September 2009
Huazhong University of Science and Technology — *Wuhan, China*

Teaching assistant

Introduction to Control Fall 2015 — The Chinese University of Hong Kong
Lecturer: Prof. Yeung Yam — *Hong Kong SAR, China*

Advanced Robotics Fall 2017 — The Chinese University of Hong Kong
Lecturer: Prof. Samuel Au — *Hong Kong SAR, China*

Mechanical Design Spring 2016 / Spring 2017 — The Chinese University of Hong Kong
Lecturer: Prof. Shih-Chi Chen — *Hong Kong SAR, China*

Internships

Wuhan National Laboratory of Optoelectronics — October 2009 $\sim$ August 2011
Research assistant — *Wuhan, China*

Technical Skills

Languages: Mandarin Chinese (Native speaker), English
Deep Learning Frameworks: Pytorch, TensorFlow
Developer Tools: VSCode, Pycharm
Programming Languages: Python, C/C++