

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 in Biomedical 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 in Biomedical 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
- Structured 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

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 – February 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 – February 01, 2018

AWARDS

Professional Excellence Award <i>Shanghai Em-Data Technology Co., Ltd.</i>	January 2021 <i>Shanghai, China</i>
Shanghai Pujiang Program <i>Science and Technology Commission of Shanghai Municipality</i>	October 2020 <i>Shanghai, China</i>
Outstanding undergraduate graduate <i>Huazhong University of Science and Technology</i>	June 2011 <i>Wuhan, China</i>
Winner of the 2014 Computational Biology Research Proposal Competition <i>Awarder: Prof. Qing Nie (Dept. of mathematics, UC Irvine)</i>	April 2014 <i>UC Irvine</i>
Excellent Academic Scholarships <i>Huazhong University of Science and Technology</i>	September 2009 <i>Wuhan, China</i>
Excellent Sports Scholarships <i>Huazhong University of Science and Technology</i>	September 2009 <i>Wuhan, China</i>

TEACHING ASSISTANT

Introduction to Control Fall 2015 <i>Lecturer: Prof. Yeung Yam</i>	The Chinese University of Hong Kong <i>Hong Kong SAR, China</i>
Advanced Robotics Fall 2017 <i>Lecturer: Prof. Samuel Au</i>	The Chinese University of Hong Kong <i>Hong Kong SAR, China</i>
Mechanical Design Spring 2016 / Spring 2017 <i>Lecturer: Prof. Shih-Chi Chen</i>	The Chinese University of Hong Kong <i>Hong Kong SAR, China</i>

INTERNSHIPS

Wuhan National Laboratory of Optoelectronics <i>Research assistant</i>	October 2009 ~ August 2011 <i>Wuhan, China</i>
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TECHNICAL SKILLS

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