Jie(Jay) Mei

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Education

University of Washington (UW) *Seattle, USA*
Ph.D., Electrical & Computer Engineering *Dec. 2023*

- Advisor: Prof. Jeng-Neng Hwang (IEEE Fellow); Information Processing Laboratory (IPL)
- Selected Courses: Deep Learning, Computer Vision, Statistical (Machine) Learning, Natural Language Processing, AI for Engineers
- **Research topic:** Vision & Language; Video-based Self-supervised Pretraining; Neural Radiance Fields (NeRF); Continual Learning

University of Washington (UW) *Seattle, USA*
Master of Science, Electrical & Computer Engineering *Mar. 2022*

- GPA: 3.92/4.0, Concurrent Degree

Beijing Institute of Technology (BIT) *Beijing, China*
B.S. in Electrical Information Engineering *Sep. 2015 - Jun. 2019*

- Elite Class, Major: Signal and Image Processing (Major GPA: 4.0/4.0, Top 1%)

University of California, Los Angeles (UCLA) *Los Angeles, USA*
Visiting Research Student in Computer Graphics and Vision *Jul. - Sep. 2018*

- Advisor: Prof. Demetri Terzopoulos
- Cross-disciplinary Scholars in Science and Technology Program (CSST, GPA: 4.0/4.0)

Hong Kong University of Science and Technology *Hong Kong, China*
Exchange Student in Computer Science & Engineering *Jun. - Aug. 2017*

- Courses: Introduction to Electro-Robot Design, Python (GPA: 4.3/4.3)

Work Experience

DeepMind Google DeepMind
Research Engineer, Manager: Scott Chen *Dec. 2023- Present*

- Deliver research and engineering assignments or milestones for artificial general intelligence (AGI), especially in large language models (LLM) and vision language models (VLM), and plan and organize work to balance immediate needs with longer-term goals of the projects, managing blockers that appear in pursuit of the goal.

Scaling Up Language-Embedded NeRF for Maps Data 3D Vision, Maps, Apple
Deep Learning Research Intern, Managers: Weiyu Zhang, Yongxi Lu *Jun. 2023- Sep.2023*

- Engineering: Scale up NeRF training via data parallel on multi-hosts and multi-GPUs; deploy real-time rendering of NeRF on Apple devices.
- Research: Multimodal learning (language + 2D images) for 3D reconstruction, detection and segmentation.

Video-Based Self-Supervised Multimodal Pretraining Google DeepMind
Research Intern, Hosts: Wei Li, AJ Piergiovanni *Sep. 2022- Apr. 2023*

- Leveraged video-caption data to learn pixel-level features via a proposed self-supervised pre-training strategy.
- Proposed an under-studied 'vision as query' architecture and achieved SOTA performance even with a smaller number of model parameters.

Lidar Point Clouds Semantics MapsCV Team, Meta Reality Labs
Research Scientist Intern, Mentors: Ruibin Ma, Sam Zhou *Jun. - Sep. 2022*

- Improved image panoptic segmentation via graph-based inference augmentation.
- Transferred image semantics to Lidar point clouds; filtered target objects for cleaner mesh.

Few-Shot Objects Detection Image and Video Group, Megvii
Software Engineer Intern, Manager: Principal Scientist Chi Zhang *Jun. - Sep. 2019*

- Implemented published papers' few-shot learning ideas on a single-shot detector (SSD).

Publications

Jie Mei, AJ Piergiovanni, Jenq-Neng Hwang, Wei Li, "SLVP: Self-supervised Language-Video Pre-training for Referring Video Object Segmentation", *IEEE/CVF Winter Conference on Applications of Computer Vision, **WACV** 2024 (PDF)*

Cheng-Yen Yang, Hsiang-Wei Huang, Zhongyu Jiang, Heng-Cheng Kuo, **Jie Mei**, Chung-I Huang, Jenq-Neng Hwang, "Sea you later: Metadata-guided long-term re-identification for uav-based multi-object tracking", *IEEE/CVF Winter Conference on Applications of Computer Vision, **WACV** 2024 (PDF)*

Jie Mei, Jenq-Neng Hwang, "ESA: Expert and Samples-Aware Incremental Learning Under Longtail Distribution", *IEEE **ICASSP** 2024 (PDF)*

A. Zhang, **Jie Mei**, F. Wallace, C. Rose, R. Hussein, Jenq-Neng Hwang, "Progressive Mixup Augmented Teacher-Student Learning for Unsupervised Domain Adaptation", ***ICIP** 2023 (PDF)*

Jie Mei, J. Yu, Jenq-Neng Hwang, S. Romain, C. Rose, B. Moore, K. Magrane, "DMR: Unsupervised Severely Deformed Mesh Reconstruction from a Single-View Image", *IEEE International Conference on Multimedia and Expo, **ICME** 2022 (PDF)*

Jie Mei, S. Romain, C. Rose, K. Magran, Jenq-Neng Hwang, "HCIL: Hierarchical Class Incremental Learning for Longline Fishing Visual Monitoring", *IEEE International Conference on Image Processing, **ICIP** 2022 (PDF)*

Y. Wang, H. Zhang, Z. Jiang, **Jie Mei**, C. Yang, J.Cai, Jenq-Neng Hwang, "HVPS: A Human Video Panoptic Segmentation Framework", *the 6th Benchmarking Multi-Target Tracking (BMTT) Workshop, **ICCV** 2021 (PDF)*

H. Zhang, Y. Wang, Z. Jiang, C. Yang, **Jie Mei**, J.Cai, Jenq-Neng Hwang, "U3D-MOLTS: Unified 3D Monocular Object Localization, Tracking and Segmentation", *the 6th Benchmarking Multi-Target Tracking (BMTT) Workshop,* ***ICCV*** *2021 (PDF)*

Jie Mei, Jenq-Neng Hwang, S. Romain, C. Rose, B. Moore, K. Magrane, "Absolute 3D Pose Estimation and Length Measurement of Severely Deformed Fish from Monocular Videos in Longline Fishing," *IEEE* ***ICASSP*** *2021 (PDF)*

Jie Mei, Jenq-Neng Hwang, S. Romain, C. Rose, B. Moore, K. Magrane, "Video-based Hierarchical Species Classification for Longline Fishing Monitoring," *the 4th Computer Vision for Automated Analysis of Underwater Imagery Workshop,* ***ICPR*** *2020 (PDF)*

Academic Services

International Journal Reviewer: TPAMI, TCSVT, Fisheries Research

International Conference Reviewer: NeurIPS (2024, 2025), CVPR (2023, 2025), ICCV (2025), ECCV (2022, 2024), WACV (2023, 2025), ICASSP (2023, 2024), ICIP (2022, 2023, 2024, 2025), ACM MM (2023, 2024), BMVC (2023, 2024, 2025), ACM (2023, 2024)

Selected Awards & Honors

2024	**1st Place in WACV 2024 MaCVi Workshop**
2021	**1st Place in ICCV 2021 BMTT Workshop**, KITTI award, MOT award
2021	**Honorable Mention Award in CVPR 2021 NTIRE Challenge**
2017	**Principal 'Xu-Teli' Scholarship**, The highest honor in BIT
2016 & 2017	**National Scholarship**, China, Top 1% in academic performance in BIT
2016	**Silver Award**, China, National College Students Physics Contest Top 5%
2016	**Gold Award**, Beijing, College Students Mathematical Modeling Contest Top 5%

Research Experience

Prototypes-Guided Text Prompt Selection for Continual Learning IPL, UW

Research Assistant, Advisor: Prof. Jenq-Neng Hwang *Mar. 2021 - Nov. 2022*

Funded by National Oceanic and Atmospheric Administration (NOAA), USA

Publication: under review

- Propose a novel approach to intentionally increase the training flexibility thus enforcing learning fine-grained text prompts.
- We further collect a real-world marine species dataset, named Marine112, to bring new challenges to the continual learning community.

Hierarchical Class Incremental Learning IPL, UW

Research Assistant, Advisor: Prof. Jenq-Neng Hwang *Dec. 2021 - Mar. 2022*

Funded by National Oceanic and Atmospheric Administration (NOAA), USA

Publication: IEEE International Conference on Image Processing (ICIP) 2022

- Proposed a framework that can jointly perform class incremental learning and hierarchical classification.

Differentiable & Inverse Rendering for Severe Deformed Mesh IPL, UW

Research Assistant, Advisor: Prof. Jenq-Neng Hwang *May. 2021 - Dec. 2021*

Funded by National Oceanic and Atmospheric Administration (NOAA), USA

Publication: IEEE International Conference on Multimedia and Expo (ICME) 2022

- Proposed a single-view-based optimization approach and modeled the object's severe deformation with linear-blend skinning.

Instance Tracking and Semantic Segmentation IPL, UW

Collaborator, Advisor: Prof. Jenq-Neng Hwang *Aug. 2021 - Oct. 2021*

Publication: International Conference on Computer Vision (ICCV) Workshop 2021

- Our panoptic segmentation method achieved 1st place on KITTI and MOT benchmarks.

Fine-Grained Classifier IPL, UW

Collaborator, Advisor: Prof. Jenq-Neng Hwang *Mar. 2021 - May. 2021*

Publication: Computer Vision and Pattern Recognition (CVPR) Workshop 2021

- Our method for fine-grained image classification won the Honorable Mention Award.

Hierarchical Classifier IPL, UW

Research Assistant, Advisor: Prof. Jenq-Neng Hwang *July. 2020 - Nov. 2020*

Funded by National Oceanic and Atmospheric Administration (NOAA), USA

Publication: International Conference on Pattern Recognition (ICPR) 2020

- Proposed a hierarchical classification dataset, a method enforcing the hierarchical structure, and an efficient training and inference strategy for video-based classifiers.

Pose Estimation and Geometry Modeling for Deformed Objects IPL, UW

Research Assistant, Advisor: Prof. Jenq-Neng Hwang *Jan. 2020 - Jul. 2020*

Funded by National Oceanic and Atmospheric Administration (NOAA), USA

Publication: International Conference on Acoustics Speech Signal Processing (ICASSP) 2021

- Developed a video-based method estimating the absolute 3D fish pose and fish length only from single-view 2D segmentation masks.

Medical Image Segmentation Graphics & Vision Lab, UCLA

Visiting Student, Advisor: Distinguished Prof. Demetri Terzopoulos *Jul. - Oct. 2018*

- Built a unified auto-initialization pipeline for three organs with an active contour model (ACM). This pipeline eliminated the need for doctors to click on a medical image.

Gait Recognition Computer Vision Group, Tsinghua University

Undergraduate Research Assistant, Advisor: Prof. Shengjin Wang *Sep. 2017 - Nov. 2018*

- Developed a bi-directional RNN model for person re-identification via gait recognition.

Computer Skills

- 5+ Years of Experience in Python, C++/C, Java, JavaScript, Matlab

- Skilled in deep learning frameworks: PAX, JAX, TensorFlow, PyTorch
- Experienced with: Blender, Differentiable/Inverse Rendering
- Machine Learning, provided by Stanford University (score: 98/100), certificate
- Deep Learning, provided by deeplearning.ai, given by Prof. Andrew Ng, certificate