Chenyan Wu

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Education

The Pennsylvania State University — **University Park, PA, USA**
Ph.D. in Information Sciences and Technology — *Aug. 2018 - Oct. 2023 (Thesis Defense)*
Advisor: Prof. James Z. Wang

University of Science and Technology of China — **Hefei, China**
B.E. in Electronic Information Engineering, School of the Gifted Young — *Aug. 2014 - Jun. 2018*

Publications

- Unlocking the Emotional World of Visual Media: An Overview of the Science, Research, and Impact of Understanding Emotion
  James Z. Wang, Sicheng Zhao, **Chenyan Wu***, Reginald B. Adams, Michelle G. Newman, Tal Shafir, Rachelle Tsachor
  *Proceedings of the IEEE (PIEEE 2023, 51 pages, *only student author)*
- Bodily Expressed Emotion Understanding through Integrating Laban Movement Analysis
  Chenyan Wu, Dolzodmaa Davaasuren, Tal Shafir, Rachelle Tsachor, James Z. Wang
  Patterns, Cell Press (Patterns 2023, featured cover article)
- Learning to Adapt to Online Streams with Distribution Shifts
  Chenyan Wu, Yimu Pan, Yandong Li, James Z. Wang
  arXiv:2303.01630 (arXiv 2023, in submission to IEEE Transactions on Pattern Analysis and Machine Intelligence)
- MUG: Multi-human Graph Network for 3D Mesh Reconstruction from 2D Pose
  Chenyan Wu, Yandong Li, Xianfeng Tang, James Z. Wang
  arXiv:2205.12583 (arXiv 2022, in submission soon to International Journal of Computer Vision)
- The Ninth Visual Object Tracking VOT2021 Challenge Results
  Matej Kristan, Jiří Matas, ..., **Chenyan Wu**, et al.
  IEEE/CVF International Conference on Computer Vision Workshop (ICCVW 2021)
- MEBOW: Monocular Estimation of Body Orientation In the Wild
  Chenyan Wu, Yukun Chen, Jiajia Luo, Che-Chun Su, Anuja Dawane, Bikramjot Hanzra, Zhuo Deng, Bilan Liu, James Z. Wang, Cheng-hao Kuo
  IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2020)
- AI-PLAX: AI-based Placental Assessment and Examination Using Photos
  Yukun Chen, Zhuomin Zhang, **Chenyan Wu**, Dolzodmaa Davaasuren, Jeffery Goldstein, Alison Gernand, James Z. Wang
  Computerized Medical Imaging and Graphics (CMIG 2020)
- Multi-region Saliency-aware Learning for Cross-domain Placenta Image Segmentation
  Zhuomin Zhang, Dolzodmaa Davaasuren, **Chenyan Wu**, Jeffery Goldstein, Alison Gernand, James Z. Wang
  Pattern Recognition Letters (PRL 2020)
- PlacentaNet: Automatic Morphological Characterization of Placenta Photos with Deep Learning
  Yukun Chen, **Chenyan Wu**, Zhuomin Zhang, Jeffery Goldstein, Alison Gernand, James Z. Wang
  Medical Image Computing and Computer Assisted Intervention (MICCAI 2019)

Manuscripts

- Neural Network Architecture Search via Cell-wise Refining
  Chenyan Wu
  Thesis in Unveristy of Science and Technology of China, 2018

Industry Experience

Research Scientist, TuSimple **San Diego, CA, USA**
Manager: Mr. Lingting Ge *Oct. 2023 - Present*
Working on object detection algorithms for self-driving trucks
- Using camera images for the detection of various traffic elements, encompassing a range of vehicle types, pedestrians, traffic signals, and other relevant entities

Research Intern, Microsoft Research Asia **Beijing, China**
Advisor: Dr. Chunyu Wang *Mar. 2021 - Sept. 2021*
Worked on self-supervised domain adaptation in online streams
- Proposed a self-supervised method to optimize models in online streams during testing continuously
- Adopted a meta-learning framework in training
- This work is under review for IEEE Transactions on Pattern Analysis and Machine Intelligence

Applied Scientist Intern, Amazon Alexa **Seattle, WA, USA (Remote)**
Advisor: Dr. Vivek Yadav *Jun. 2020 - Sept. 2020*
Worked on stronger and faster 3D Human Body Mesh Estimation (HBME)
- Designed a novel vector limb loss to enhance existing single-person HBME methods
- Proposed a single-shot multi-person HBME method, inspired by CenterNet

Applied Scientist Intern, Amazon Lab126 (the Astro team) **Bellevue, WA, USA**
Advisor: Dr. Jiajia Luo and Dr. Cheng-hao Kuo *May 2019 - Aug. 2019*
Worked on human body orientation estimation in the wild
- Participated in building a large-scale dataset for human body orientation estimation
- Designed a novel neural network for orientation estimation
- Enhanced 3D human pose estimation using the human orientation dataset
- Published one paper on CVPR 2020. The body orientation technique described in the paper has been used in the Amazon household robot - Astro.

Research Intern, SenseTime Research **Shenzhen, China**
Advisor: Dr. Xinjiang Wang and Prof. Ping Luo *Mar. 2018 - Jul. 2018*
Worked on neural network architecture search via cell-wise refining
- Searched network architectures by searching cells, inspired by ENAS (Efficient Neural Architecture Search)
- Conducted the architecture search on image recognition datasets (*e.g.*, Cifar10 and ImageNet)

Academic Experience

Research Assistant, The Pennsylvania State University **University Park, PA, USA**
Advisor: Prof. James Z. Wang *Sept. 2020 - Oct. 2023*
Worked on Bodily Expressed Emotion Understanding (BEEU)
- Built a large-scale human motion dataset by leveraging Laban movement analysis
- Proposed a multi-task network to estimate human motion and emotion simultaneously

Research Assistant, The Pennsylvania State University **University Park, PA, USA**
Advisor: Prof. James Z. Wang *Aug. 2018 - May 2020*
Worked on placenta image analysis using deep learning
- Collected, processed, and annotated placenta images from hospitals
- Used semantic segmentation network (*e.g.*, Deeplab V3) to segment placenta images
- Identified pathological placentas and detected pathological areas in placenta images

Visiting Scholar, University of Technology Sydney **Sydney, Australia**
Advisor: Prof. Stuart Perry *Jun. 2017 - Sept. 2017*
Worked on 3D object detection on point sets using on deep learning
- Studied the classical point cloud classification network - PointNet
- Proposed a novel 3D object detection network, inspired by the 2D object detection network - YOLO
- Used the S3DIS Dataset to train and evaluate the proposed network

Research Assistant, Moe-Microsoft Key Laboratory, USTC **Hefei, China**

Advisor: Prof. Zhibo Chen *Jun. 2016 - Sept. 2016*
Worked on pedestrian detection based on Faster RCNN
- Used the Caltech pedestrian dataset to train the object detection network - Faster RCNN
- Caffe as the deep learning framework

Teaching

Teaching Assistant, The Pennsylvania State University **University Park, PA, USA**
Instructor: Prof. Kaamran Raahemifar *Fall 2021*
Course: DS 340W Applied Data Sciences

Teaching Assistant, The Pennsylvania State University **University Park, PA, USA**
Instructor: Prof. James Z. Wang *Spring 2020*
Course: IST 597 Artificial Emotional Intelligence

Honors

- Outstanding graduates, University of Science and Technology of China, 2018
- First Class Scholarship, twice, University of Science and Technology of China, 2016 and 2017
- Honorable Mention, The Mathematical Contest in Modeling, Apr. 2017
- National First Prize, Rank 15/30000+, The Seventh Chinese Mathematics Competition (non-math major), Mar. 2016
- National Scholarship, University of Science and Technology of China, Nov. 2015

Services

- Conference reviewer for WACV 2021, ECCV 2022, AAAI 2023, CVPR 2023, ICCV 2023, AAAI 2024
- Journal reviewer for IEEE Transactions on Cybernetics

Skills

- Languages: Python, Matlab, C++, C
- Tools: Pytorch, TensorFlow, MMAction2, MMPose