

Zhizhong Huang

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SUMMARY

I am Postdoc at Michigan State University, MI, USA. Previously, I got my PhD's degree from Fudan University advised by [Prof. Junping Zhang](#) and [Prof. Hongming Shan](#) and bachelor's degree from Sichuan University in 2019. My main research interests include representation learning, unsupervised/semi-supervised learning, multimodality, and generative models.





EDUCATION AND WORK EXPERIENCE

2015/09 - 2019/06	Bachelor in Software Engineering at Sichuan University, Chengdu, China. GPA: 3.71/4.0 (top 4%).
2019/09 - 2024/06	PhD in Computer Science at Fudan University, Shanghai, China.
2024/01 - 2024/08	Research intern at Alibaba DAMO Academy, Hangzhou, China.
2024/08 - Present	Research Scholar at Michigan State University, East Lansing, US.




HONORS AND AWARDS

2016 - 2017	National Scholarship.
2017 - 2018	National Scholarship.
2020 - 2021	National Scholarship.
2022 - 2023	National Scholarship.
2021	Second prize of CCF University Student Academic Show (PhD Group)  Chinese Link
2024	Outstanding graduated student in Shanghai City (Rank 1 in PhDs)  Chinese Link

OPEN-SOURCE PROJECTS

Pytorch-openpose (over 2k stars) Pytorch implementation of openpose including Hand and Body Pose Estimation.	 Github
Precipitation-Nowcasting (500 stars) Implemented a pytorch-based encoder-forecaster model with RNNs including (TrajGRU, ConvLSTM) to do precipitation nowcasting.	 Github
Torch clustering A pure PyTorch implementation of kmeans and GMM with distributed clustering.	 Github
GLIGEN Training A diffusers implementation of training GLIGEN: Open-Set Grounded Text-to-Image Generation like ControlNet. Merged to diffusers official repo. Link and code .	 Github

SELECTED PUBLICATIONS

- **Zhizhong Huang**, Anil K. Jain, Xiaoming Liu. “LLM-assisted Disentangled Diffusion Model for Face Generation.” **submitted to CVPR 2024**.
- **Zhizhong Huang**, Junping Zhang and Hongming Shan. “When Age-Invariant Face Recognition Meets Face Age Synthesis: A Multi-Task Learning Framework and A New Benchmark.” Proceedings of IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR Oral**) 2021 and journal version IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**) 2022.  [Code](#) | Conference:  [arXiv](#) | Journal:  [arXiv](#)
- **Zhizhong Huang**, Jie Chen, Junping Zhang and Hongming Shan. “Learning Representation for

Clustering via Prototype Scattering and Positive Sampling.” IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**) 2022. [🔗 Code](#) | [🔗 arXiv](#)

- **Zhizhong Huang**, Mingliang Dai, Yi Zhang, Junping Zhang and Hongming Shan. “Point, Segment and Count: A Generalized Framework for Object Counting.” Proceedings of IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**) 2024. [🔗 Code](#) | [🔗 arXiv](#)
- **Zhizhong Huang**, Junping Zhang, and Hongming Shan. “Twin Contrastive Learning with Noisy Labels.” Proceedings of IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**) 2023. [🔗 Code](#) | [🔗 arXiv](#)
- **Zhizhong Huang**, Shouzhen Chen, Junping Zhang, and Hongming Shan. “PFA-GAN: Progressive Face Aging with Generative Adversarial Network.” IEEE Transactions on Information Forensics and Security (**TIFS**) 2021. [🔗 Code](#) | [🔗 arXiv](#)
- **Zhizhong Huang**, Siteng Ma, Junping Zhang, and Hongming Shan. “Adaptive Nonlinear Latent Transformation for Conditional Face Editing.” International Conference on Computer Vision (**ICCV**) 2023. [🔗 Code](#) | [🔗 arXiv](#)
- **Zhizhong Huang**, Shouzhen Chen, Junping Zhang, and Hongming Shan. “AgeFlow: Conditional Age Progression and Regression with Normalizing Flows.” International Joint Conference on Artificial Intelligence (**IJCAI**) 2021. [🔗 Code](#) | [🔗 arXiv](#)
- **Zhizhong Huang**, Junping Zhang, Yi Zhang, and Hongming Shan. “DU-GAN: Generative Adversarial Networks with Dual-Domain U-Net Based Discriminators for Low-Dose CT Denoising.” IEEE Transactions on Instrumentation and Measurement (**TIM**) 2021. [🔗 Code](#) | [🔗 arXiv](#)

SKILLS

English CET-6

Reviewer Top Conferences such as ICML, NIPS, CVPR, *etc.*

Coding Python, PyTorch, *etc.*

FULL PUBLICATIONS (SORTED BY TIME)

1. **Zhizhong Huang**, Anil K. Jain, Xiaoming Liu. “LLM-assisted Disentangled Diffusion Model for Face Generation.” **submitted to CVPR 2024**.
2. Yujie Wei, Shiwei Zhang, Hangjie Yuan, Xiang Wang, Haonan Qiu, Rui Zhao, Yutong Feng, Feng Liu, **Zhizhong Huang**, Jiaxin Ye, Yingya Zhang, Hongming Shan. “DreamVideo-2: Zero-Shot Subject-Driven Video Customization with Precise Motion Control.” **ArXiv:2410.13830**. [🔗 Code](#) | [🔗 arXiv](#)
3. **Zhizhong Huang**, Mingliang Dai, Yi Zhang, Junping Zhang and Hongming Shan. “Point, Segment and Count: A Generalized Framework for Object Counting.” Proceedings of IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**) 2024. [🔗 Code](#) | [🔗 arXiv](#)
4. Binglei Li, **Zhizhong Huang**, Hongming Shan, Junping Zhang. “Semantic Latent Decomposition with Normalizing Flows for Face Editing.” Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing (**ICASSP**) 2024. [🔗 Code](#) | [🔗 arXiv](#)
5. Chenhui Wang, Sirong Piao, **Zhizhong Huang**, Qi Gao, Junping Zhang, Yuxin Li, Hongming Shan. “Joint learning framework of cross-modal synthesis and diagnosis for alzheimer’s disease by mining underlying shared modality information.” Medical Image Analysis (**MIA**) 2024. [🔗 Code](#) | [🔗 DOI](#)
6. Chenhui Wang, Tao Chen, Zhihao Chen, **Zhizhong Huang**, Taoran Jiang, Qi Wang, Hongming Shan. “FLDM-VTON: Faithful Latent Diffusion Model for Virtual Try-on.” International Joint Conference on Artificial Intelligence (**IJCAI**) 2021. [🔗 arXiv](#)
7. **Zhizhong Huang**, Junping Zhang, and Hongming Shan. “Twin Contrastive Learning with Noisy Labels.” Proceedings of IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**) 2023. [🔗 Code](#) | [🔗 arXiv](#)
8. **Zhizhong Huang**, Siteng Ma, Junping Zhang, and Hongming Shan. “Adaptive Nonlinear Latent

- Transformation for Conditional Face Editing.” International Conference on Computer Vision (ICCV) 2023. [Code](#) | [arXiv](#)
9. Yujie Wei, Jiaxin Ye, **Zhizhong Huang**, Junping Zhang, Hongming Shan. “Online prototype learning for online continual learning.” International Conference on Computer Vision (ICCV) 2023. [Code](#) | [arXiv](#)
 10. Jiaqi Gao, **Zhizhong Huang**, Yiming Lei, Hongming Shan, James Z. Wang, Fei-Yue Wang and Junping Zhang. “Deep Rank-Consistent Pyramid Model for Enhanced Crowd Counting.” IEEE Transactions on Neural Networks and Learning Systems (TNNLS) 2023. [Code](#) | [arXiv](#)
 11. Weiyi Yu, **Zhizhong Huang**, Junping Zhang and Hongming Shan. “SAN-Net: Learning Generalization to Unseen Sites for Stroke Lesion Segmentation with Self-Adaptive Normalization.” Computers in Biology and Medicine (CIBM) 2023. [Code](#) | [DOI](#)
 12. Mingliang Dai, **Zhizhong Huang**, Jiaqi Gao, Hongming Shan, Junping Zhang. “Cross-head Supervision for Crowd Counting with Noisy Annotations.” Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) 2023. [Code](#) | [arXiv](#)
 13. Jiaxin Ye, Yujie Wei, Xin-Cheng Wen, Chenglong Ma, **Zhizhong Huang**, Kunhong Liu, Hongming Shan. “Emo-DNA: Emotion Decoupling and Alignment Learning for Cross-Corpus Speech Emotion Recognition.” ACM International Conference on Multimedia (MM) 2023. [Code](#) | [arXiv](#)
 14. **Zhizhong Huang**, Junping Zhang and Hongming Shan. “When Age-Invariant Face Recognition Meets Face Age Synthesis: A Multi-Task Learning Framework and A New Benchmark.” IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) 2022. [Code](#) | [arXiv](#)
 15. **Zhizhong Huang**, Jie Chen, Junping Zhang and Hongming Shan. “Learning Representation for Clustering via Prototype Scattering and Positive Sampling.” IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) 2022. [Code](#) | [arXiv](#)
 16. Jie Chen, Weiqi Liu, **Zhizhong Huang**, Junbin Gao, Junping Zhang, Jian Pu. “Universal deep GNNs: rethinking residual connection in GNNs from a path decomposition perspective for preventing the over-smoothing.” [ArXiv:2205.15127](#). [arXiv](#)
 17. **Zhizhong Huang**, Junping Zhang, and Hongming Shan. “When Age-Invariant Face Recognition Meets Face Age Synthesis: A Multi-Task Learning Framework.” Proceedings of IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR Oral) 2021. [Code](#) | [arXiv](#)
 18. **Zhizhong Huang**, Shouzhen Chen, Junping Zhang, and Hongming Shan. “AgeFlow: Conditional Age Progression and Regression with Normalizing Flows.” International Joint Conference on Artificial Intelligence (IJCAI) 2021. [Code](#) | [arXiv](#)
 19. **Zhizhong Huang**, Junping Zhang, and Hongming Shan. “RoutingGAN: Routing age progression and regression with disentangled learning.” IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) 2021. [Code](#) | [arXiv](#)
 20. **Zhizhong Huang**, Junping Zhang, Yi Zhang, and Hongming Shan. “DU-GAN: Generative Adversarial Networks with Dual-Domain U-Net Based Discriminators for Low-Dose CT Denoising.” IEEE Transactions on Instrumentation and Measurement (TIM) 2021. [Code](#) | [arXiv](#)
 21. **Zhizhong Huang**, Shouzhen Chen, Junping Zhang, and Hongming Shan. “PFA-GAN: Progressive Face Aging with Generative Adversarial Network.” IEEE Transactions on Information Forensics and Security (TIFS) 2021. [Code](#) | [arXiv](#)
 22. Haiping Zhu, **Zhizhong Huang**, Hongming Shan, Junping Zhang. “Look globally, age locally: Face aging with an attention mechanism.” IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) 2020. [Code](#) | [arXiv](#)
 23. Yuan Li, **Zhizhong Huang**, Xiaoi Dong, Weibo Liang, Hui Xue, Lin Zhang, Yi Zhang, and Zhenhua Deng. “Forensic age estimation for pelvic X-ray images using deep learning.” **European Radiology** 2019. **Equal contributions**. [DOI](#)
 24. Yuan Cao, Qiuying Li, Hongming Shan, **Zhizhong Huang**, Lei Chen, Leiming Ma, Junping Zhang. “Precipitation nowcasting with star-bridge networks.” [ArXiv:1907.08069](#). [arXiv](#)

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