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Education

Ph.D., Computer Science and Engineering, *Sep 2019 - Aug 2023*
University at Buffalo, Buffalo, NY, US

M.E., Automation Science and Electrical Engineering, *Sep 2014 - Jun 2017*
Beihang University, Beijing, China

B.S., Astronautics, *Sep 2010 - Jun 2014*
Beihang University, Beijing, China

Research Experience

Research Assistant, Artificial Intelligence Institute, University at Buffalo *Sep 2019 - Now*
Advisor: Prof. David Doermann
- Federated learning: federated ensemble distillation.
- 3D vision: human mesh reconstruction, neural radiance fields.
- Medical imaging: cancer prognosis, image registration, endoscopy video analysis.

Research Intern, Alibaba DAMO Academy, *New York, NY* *Feb 2023 - Now*
Topics: **Esophageal cancer prognosis from radiologic images**
- Tumor and lymph nodes segmentation.
- Survival analysis with deep cox regression model.

Research Intern, Meta Reality Lab, *Redmond, WA* *Aug 2022 - Dec 2022*
Topics: **3D implicit modeling and synthesis of human eyes**
- Novel view eye image synthesis.
- Controllable eye-region animation with novel gaze and novel expression.

Part-time researcher, OPPO US Research Center, *Palo Alto, CA* *April 2022 - Aug 2022*
Topics: **Real-time 3D scene reconstruction from monocular video**
- Learning-based global TSDF fusion with sequential GRU.
- 4D space decomposition for efficient voxel modeling.

Part-time researcher, UII America, *Cambridge, MA* *May 2021 - Aug 2021*
Topics: **Synthetic training for 3D human mesh recovery**
- Render proxy representations (joints, IUV, depth, normal) with SMPL priors for self-supervised human mesh reconstruction.

Research Intern, UII America, *Cambridge, MA (remote)* *May 2020 - Aug 2020*
Topics: **Distillation based federated learning**
- Ensemble knowledge of distributed models with privacy-preserving distillation.
- Improve communication efficiency with one-shot knowledge distillation.

Research Engineer, Huawei Technologies Co., Ltd., *Beijing, China* *June 2017 - Aug 2019*
Topics: **Image denoising and style transfer**
- Conduct multi-frame image registration for noise reduction.
- Learn a bilateral network for affine color transform.

Publications

Conferences
- **Xuan Gong**, Liangchen Song, Meng Zheng, Benjamin Planche, Terrence Chen, Junsong Yuan,

David Doermann, Ziyan Wu, "Progressive Multi-view Human Mesh Recovery with Self Supervision". *AAAI*, 2023. (Oral, Student Travel Award)

- **Xuan Gong**, Meng Zheng, Benjamin Planche, Srikrishna Karanam, Terrence Chen, David Doermann, Ziyan Wu, "Self-supervised Human Mesh Recovery with Cross-Representation Alignment". *ECCV*, 2022.
- Liangchen Song, **Xuan Gong**, Benjamin Planche, Meng Zheng, David Doermann, Junsong Yuan, Terrence Chen, Ziyan Wu, "PREF: Predictability Regularized Neural Motion Fields". *ECCV*, 2022. (Oral)
- Meng Zheng, Benjamin Planche, **Xuan Gong**, Fan Yang, Terrence Chen, Ziyan Wu, "Self-supervised 3D Patient Modeling with Multi-modal Attentive Fusion", *MICCAI*, 2022. (Early accept)
- **Xuan Gong**, Abhishek Sharma, Srikrishna Karanam, Ziyan Wu, Terrence Chen, David Doermann, Arun Innanje, "Preserving Privacy in Federated Learning with Ensemble Cross-Domain Knowledge Distillation", *AAAI*, 2022. (Graduate Student Scholarship)
- **Xuan Gong**, Luckyson Khaide, Wentao Zhu, Baochang Zhang, David Doermann, "Uncertainty Learning towards Unsupervised Deformable Medical Image Registration", *WACV*, 2022. (Student Travel Award)
- **Xuan Gong**, Abhishek Sharma, Srikrishna Karanam, Ziyan Wu, Terrence Chen, David Doermann, Arun Innanje, "Ensemble Attention Distillation for Privacy-Preserving Federated Learning", *ICCV*, 2021.
- **Xuan Gong**, Shuyan Chen, Baochang Zhang, David Doermann, "Style Consistent Image Generation for Nuclei Instance Segmentation", *WACV*, 2021.
- **Xuan Gong***, Xin Xia*, Wentao Zhu, Baochang Zhang, David Doermann, Li'an Zhuo, "Deformable Gabor Feature Networks for Biomedical Image Classification", *WACV*, 2021.
- Hanlin Chen, Baochang Zhang, Song Xue, **Xuan Gong**, Hong Liu, Rongrong Ji, David Doermann, "Anti-Bandit Neural Architecture Search for Model Defense", *ECCV*, 2020.
- Junqin Huang, Xiang Xiang, **Xuan Gong**, Baochang Zhang, "Long-Short Graph Memory Network for Skeleton-based Action Recognition", *WACV*, 2020.

Journals

- **Xuan Gong**, Liangchen Song, Rishi Vedula, Abhishek Sharma, Meng Zheng, Benjamin Planche, Arun Innanje, Terrence Chen, Junsong Yuan, David Doermann, Ziyan Wu, "Federated Learning with Privacy-Preserving Ensemble Attention Distillation". *IEEE Transactions on Medical Imaging*, 2022.
- Song Xue, Hanlin Chen, Chunyu Xie, Baochang Zhang, **Xuan Gong**, David Doermann, "Fast and Unsupervised Neural Architecture Evolution for Visual Representation Learning", *IEEE Computational Intelligence Magazine*, 2021.
- Wenyu Zhao, Teli Ma, **Xuan Gong**, Baochang Zhang, David Doermann, "A Review of Recent Advances of Binary Neural Networks for Edge Computing", *IEEE Journal on Miniaturization for Air and Space Systems*, 2020.

Professional Services

- **Conference Reviewer**: IJCAI'23, ICLR'23, CVPR'23, ECCV'22, WACV'22'23
- **Journal Reviewer**: TIP, TMI, JBHI, TBD, NCAA
- **Teaching Assistant**: CSE573 Introduction to Computer Vision and Image Processing (University at Buffalo), Fall 2019, Spring 2020, Fall 2020, Spring 2021, Fall 2021.

Computer Skills

Competent in Python, familier with C/C++ and R.