

# Zhexiao Xiong

314-319-2407 | [x.zhexiao@wustl.edu](mailto:x.zhexiao@wustl.edu) | [Linkedin](#) | [Github](#) | [Webpage](#)

## EDUCATION

### Washington University in St.Louis

*Ph.D. in Computer Science Advisor: Prof.Nathan Jacobs*

St.Louis, MO, USA

Aug. 2022 – May 2027(expected)

### Tianjin University

*B.Eng. in Electrical and Information Engineering*

Tianjin, China

Sep. 2018 – June 2022

## RESEARCH EXPERIENCE

### Graduate Research Assistant

*Washington University in St.Louis*

August. 2022 – Present

*Advisor: Prof. Nathan Jacobs*

- Research on image synthesis, diffusion models, especially on outdoor scenes.
- Research on stereo matching, depth estimation, optical flow estimation and domain adaptation.

### Computer Vision Research Intern

*OPPO Research Institute, Beijing, China*

February. 2022 – May. 2022

*Mentor: Dr.Bo Xu*

- Researched on image matting, proposed a framework to use human pose as guidance to achieve whole body matting.

### Undergraduate Research Assistant

*Institute of Automation, Chinese Academy of Sciences, Beijing, China*

Jan. 2021 – Jan. 2022

*Advisor: Prof. Jinqiao Wang*

- Researched on model compression and network pruning, especially the application on Vision Transformer.

## PUBLICATIONS

**Zhexiao Xiong**, Feng Qiao, Yu Zhang, Nathan Jacobs. **StereoFlowGAN: Co-training for Stereo and Flow with Unsupervised Domain Adaptation**, British Machine Vision Conference (BMVC), 2023.

Nanfei Jiang, **Zhexiao Xiong**, Hui Tian, Xiaojie Du, Xu Zhao, Chaoyang Zhao\*, Jinqiao Wang. **PruneFaceDet: Pruning Lightweight Face Detection Network by Sparsity Training**, Cognitive Computation and Systems, 2021.

**Zhexiao Xiong**, Xin Wen, Xu Zhao\*, Haiyun Guo, Chaoyang Zhao, Jinqiao Wang. **Two-level Iteration Method for Multi-task Learning with Task-isolated Labels**, International Conference on Computer Vision and Pattern Analysis, 2021.

## RESEARCH INTERESTS

I am broadly interested in computer vision and multi-modal learning, especially in autonomous driving and remote sensing scenes, including crossview & novel view synthesis, birds-eye-view perception, and fundamental computer vision problems such as stereo matching, optical flow estimation, depth estimation and domain adaptation.

## RESEARCH PROJECTS

### Near panorama synthesis based on Diffusion Model

*Washington University in St.Louis*

03/2023 – present

*Advisor: Prof. Nathan Jacobs*

- Utilize geospatial information to guide the diffusion model in near panoramas synthesis task.

### Co-training for Stereo and Flow with Unsupervised Domain Adaptation

*Washington University in St.Louis*

01/2023 – 05/2023

*Advisor: Prof. Nathan Jacobs*

- Built an end-to-end joint learning framework to combine unsupervised domain translation with optical flow estimation and stereo matching in the absence of real ground truth optical flow and disparity,
- Applied novel constraints on the cycle domain translation process to achieve cross-domain translation with global and local consistency.
- Employed task-specific multi-scale feature warping loss and iterative feature warping loss during the training phase to regulate the training process in both spatial and temporal dimensions.

### Vision Transformer pruning

*Institute of Automation, Chinese Academy of Sciences*

03/2022 – 08/2022

*Advisor: Prof. Jinqiao Wang and Dr. Xu Zhao*

- Based on  $L_0$  regularization, we proposed a unified framework that jointly applied masks on MSA and MLP layers, which reduce the number of parameters of the model without breaking the original structure of the model.
- Transferred our proposed structured pruning framework to downstream tasks and get the state-of-the-art performance, which does not require consuming computation resources on training on upstream datasets.

### Mobile AI 2021 Real-Time Camera Scene Detection Challenge | Mobile AI Workshop @ CVPR 2021

- Used two-stage fine-tuning method to improve the accuracy and the model pruning method to improve the model's efficiency.
- Used the float32-to-int8 quantization and model pruning methods to optimize our model.

## TECHNICAL SKILLS

**Programming:** Python, C/C++, Java, Matlab

**Deep Learning Frameworks:** Pytorch, Tensorflow

**Languages:** English, Chinese