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| **XIAOCHEN ZHOU**  2804 Horizon Dr, West Lafayette, IN, US | [zhou1178@purdue.edu](mailto:zhou1178@purdue.edu) | 314-326-7786 |

**EDUCATION**

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| **Purdue University,** GPA 3.85   * PhD of Science in Computer Science | *West Lafayette, IN*  *Aug 2020 –* *Dec 2024* |
| **Washington University in St. Louis**, GPA 4.0   * Master of Science in Computer Science | *St. Louis, MO*  *Aug 2018 –* *May 2020* |
| **Beihang University**, GPA 3.65   * Bachelor of Science in Computer Science and Engineering | *Beijing, China*  *Aug 2014 – May 2018* |

**Skill Set**

* **Program Language & Tools:** Python, CUDA, C++, Pytorch, Tensorflow, OpenCV, OpenGL
* **Skills**: GenAI, Point Cloud Processing, Procedural Modeling, Image Processing

**WORKING & ACADEMIA EXPERIENCE**

**Large Scale Forest Reconstruction from LiDAR Point Cloud** *Purdue, IN*

*Research Assistant Dec 2022 – Aug 2024*

* Deployed point-to-mesh reconstruction pipeline for large scale noisy forest point cloud data.
* Designed unsupervised point cloud segmentation algorithm for point cloud instance segmentation and decomposition.
* Designed neural ranking pipeline which matches the raw point cloud with the procedural parameters and models.
* Improved the reconstruction precision over 6% and recall over 13% compared with SOTA method.

**NeRF-based Human Body Reconstruction through Monocular Video** *Microsoft, WA*

*Research Scientist Intern May 2022 – Aug 2022*

* Deployed NeRF-based human body reconstruction pipeline through monocular video with Pytorch.
* Deployed differentiable neural skinning for deformed-to-canonical pose transformation optimization.
* Improved the detailed features of rendering results and optimized hard pose deformation.

**Controllable Plant Modeling by Neural Procedural Representation** *Purdue, IN*

*Research Assistant May 2021 – Aug 2022*

* Deployed neural procedural modeling pipeline for multiple species tree modeling with Pytorch.
* Designed latent representation for local representation by neural network and recursive generation pipeline.
* Boosted ~70% run time compared with procedural modeling and lower the error to less than 3%.

**Image-based 3D Model Retrieval for ill-posed Case** *Facebook, WA*

*Research Scientist Intern May 2021 – Aug 2021*

* Deployed global-local region attention network for non-rigid object retrieval with PyTorch and Pytorch lightning
* Designed and optimized local feature self-attention unit for unique and rigid local region feature extraction.
* Boosted ~2% retrieval accuracy on Sapien and ~5% on Facebook internal synthetic dataset.

**Image Extrapolation through Patch Match and GANs** *WashU VLG lab, MO*

*Machine Learning Engineer Jun 2019 – May 2020*

* Implemented publications and projects related to image inpainting and extrapolation with Tensorflow.
* Designed and implemented novel U-Net based GANs for image reconstruction through image layout.
* Designed image extension method based on patch matching algorithms and optimized pix2pix method.
* Built end-to-end pipeline for layout detection, image extension and image reconstruction with Python.

**Style Transform Network with Local Details Optimization** *Washington University in St. Louis, MO*

*Research assistant Feb 2019 –May 2019*

* Deployed image affine transformation with camera intrinsic and extrinsic calibration in python and OpenCV.
* Built pipeline for image affine transformation, image style transformation and local detail optimization.
* Implemented style transform network and optimized the artifacts noises generated from local style transform with neural network in Keras framework.

**View-based 3D Model Recognition via Deep Learning Method** *Beihang University, Beijing, China*

*Research assistant Sep 2016 – Feb 2018*

* Devised neural networks for 3D models recognition through multiple rendered 2D images
* Designed two different self-attention units for unique feature extraction.
* Used LSTM in ordered feature extraction and aggregated extracted information as features for 3D shapes.

**PUBLICATION**

* **Xiaochen Zhou**, Bosheng Li, Bedrich Benes, Songlin Fei, Sören Pirk “*TreeStructor: Forest Reconstruction with Neural Ranking*”, under review ACM ToG 2024.
* **Xiaochen Zhou**, Bosheng Li, Bedrich Benes, Songlin Fei, Sören Pirk, “*DeepTree: Modeling Trees with Situated Latents*”, accepted by TVCG 2022.
* **Xiaochen Zhou**, Pascal Chang, Marie-Paule Cani, Bedrich Benes, “*Urban Brush: Intuitive and Controllable Urban Layout Editing*”, accepted by UIST 2021.