

XIAOCHEN ZHOU

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EDUCATION

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

St. Louis, MO

- ♦ Master of Science in Computer Science

Aug 2018 – May 2020

Beihang University, GPA 3.65

Beijing, China

- ♦ Bachelor of Science in Computer Science and Engineering

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.