Zixuan Huang

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Professional Profile

Computer vision and machine learning researcher with expertise in 3D generation, self-supervised learning, and large-scale model training. Driven to develop next-generation foundation models that create interactive 4D worlds.

Research and Work Experience

University of Illinois Urbana-Champaign, PhD Student Researcher August 2020 - Present

Learning Scalable and Generalizable 3D Reconstruction Models

- Led two research projects on self-supervised 3D learning without any 3D supervision
- Led one research project on efficient single-view 3D reconstruction via regression modeling

Stability AI, Research Scientist Intern February 2024 - August 2024

Large-scale Single-image 3D Reconstructor with Efficient Inference

- Redesigned large reconstruction models across architecture, data, training pipeline, and loss function
- Developed and open-sourced three ultra-fast SOTA 3D reconstruction models, earning 7k+ GitHub stars
- Produced two research papers under submission to top conferences and one high-impact tech report

FAIR at Meta, Research Scientist Intern May 2023 - July 2023

High-resolution 3D Point Diffusion Model from Noisy Low-resolution Data

- Designed a 3D point diffusion denoiser robust to the change of resolution
- Enabled continuous 3D surface generation despite training on noisy, low-resolution point clouds

Google Research, Part-time Student Researcher February 2022 - May 2022

Learning to Reconstruct 3D Objects in the Wild

- Trained a 3D object reconstructor from single images using multimodal language prior
- Achieved 3D reconstruction on in-the-wild images without training on any 3D data

Sensetime Research, Research Scientist Intern February 2018 - Jun 2018

Monocular Depth Completion from Sparse Depth Maps

- Built a multi-scale depth completion model invariant to sparsity patterns in the input
- Achieved SOTA on the KITTI depth completion benchmark, leading to publication at a premier venue

Education

University of Illinois Urbana-Champaign, PhD in Computer Science 2020 - 2025 (expected)

University of Wisconsin-Madison, M.Sc. in Computer Science 2018 - 2020

University of Science and Technology of China, B.Eng., Special Class for the Gifted Young 2014 - 2018

Selected Publications

- SPAR3D: Stable Point-Aware Reconstruction of 3D Objects from Single Images
  Huang, Z., Boss, M., Vasishta, A., Rehg, J. M., & Jampani, V. CVPR 2025
- PointInfinity: Resolution-Invariant Point Diffusion Models
  Huang, Z., Johnson, J., Debnath, S., Rehg, J. M., & Wu, C. CVPR 2024
- ZeroShape: Regression-based Zero-shot Shape Reconstruction
  Huang, Z.*, Stojanov, S.*, Thai, A., Jampani, V., & Rehg, J. M. CVPR 2024
- ShapeClipper: Scalable 3D Shape Learning from Single-View Images via Geometric and CLIP-based Consistency
  Huang, Z., Jampani, V., Thai, A., Li, Y., Stojanov, S., & Rehg, J. M. CVPR 2023
- Planes vs. Chairs: Category-guided 3D shape learning without any 3D cues
  Huang, Z., Stojanov, S., Thai, A., Jampani, V., & Rehg, J. M. ECCV 2022
- Interpretable and Accurate Fine-grained Recognition via Region Grouping
  Huang, Z., & Li, Y. CVPR 2020 (Oral)

Skills

- **Programming & Tools:** Python, C, MATLAB, C++, CUDA, Blender, OpenCV, GCP, SLURM
- **Machine Learning:** PyTorch, NumPy, scikit-learn, TensorFlow, VLMs
- **Leadership:** Mentored junior PhD students on research projects