# Zixuan Huang

📱 (608) 733-8800   ✉ zxhuang1698@gmail.com   🌐 zixuanh.com   in zixuan-huang

## Education

**University of Illinois Urbana-Champaign, PhD in Computer Science**                     2023 - 2025
**Georgia Institute of Technology, PhD in Computer Science**        2020 - 2023 (transferred to UIUC)
- Advisor: James M. Rehg
- Thesis: From Objects to Worlds: Scalable Learning of 3D Assets

**University of Wisconsin-Madison, M.Sc. in Computer Science**                            2018 - 2020
- Advisor: Yin Li
- Research topic: Self-supervised Learning of Object Parts

**University of Science and Technology of China, B.Eng., Information Security**           2014 - 2018
- Special Class for the Gifted Young
- GPA: 3.87/4.30, Rank: 2/66

## Research and Work Experience

**Meta Reality Labs, Research Scientist**                                            June 2025 - Present
**Interactive 3D World Generation**
- Full-stack development on latent diffusion models that generate interactive and editable 3D worlds from text prompts
- Built scalable data engines for training large 3D generators, significantly improving model performance
- Shipped key features in AssetGen and contributed to Meta's publicly announced WorldGen as a core contributor

**UIUC/Georgia Tech, PhD Student Researcher**                            August 2020 - December 2025
**Scalable Learning of 3D Objects and Scenes**
- Led one research project on video foundation models for 3D world modeling
- Led two research projects on self-supervised 3D learning without any 3D supervision
- Led one research project on efficient single-view 3D reconstruction via feedforward 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 8.5k+ GitHub stars
- Produced two research papers accepted to CVPR 2025 and one high-impact tech report

**Meta, FAIR, 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 and published at a premier venue

## Publications and Preprints

1. How Much 3D Do Video Foundation Models Encode?
   **Huang, Z.***, Li, X.*, Lv, Z., & Rehg, J. M.                                      Arxiv Preprint

2. WorldGen: From Text to Traversable and Interactive 3D Worlds
   Wang et al. [including **Huang, Z.** as a core contributor]                         Arxiv Preprint

3. Cue3D: Quantifying the Role of Image Cues in Single-Image 3D Generation
   Li, X., Wang, Z., **Huang, Z.**, & Rehg, J. M.                               NeurIPS 2025 (Spotlight)

4. SPAR3D: Stable Point-Aware Reconstruction of 3D Objects from Single Images
   **Huang, Z.**, Boss, M., Vasishta, A., Rehg, J. M., & Jampani, V.                      CVPR 2025

5. SF3D: Stable Fast 3D Mesh Reconstruction with UV-unwrapping and Illumination Disentanglement
   Boss, M., **Huang, Z.**, Vasishta, A., & Jampani, V.   CVPR 2025

6. Symmetry Strikes Back: From Single-Image Symmetry Detection to 3D Generation
   Li, X., **Huang, Z.**, Thai, A., & Rehg, J. M.   CVPR 2025 (Highlight)

7. MEBench: A Novel Benchmark for Understanding Mutual Exclusivity Bias in Vision-Language Models
   Thai, A., Stojanov, S., **Huang, Z.**, Boote, B., & Rehg, J. M.   arXiv Preprint 2025

8. If LLM Is the Wizard, Then Code Is the Wand: A Survey on How Code Empowers Large Language Models to Serve as Intelligent Agents
   Yang et al. [including **Huang, Z.**]   ICLR Workshop 2024

9. TripoSR: Fast 3D Object Reconstruction from a Single Image
   Tochilkin et al. [including **Huang, Z.**]   arXiv Preprint 2024

10. PointInfinity: Resolution-Invariant Point Diffusion Models
    **Huang, Z.**, Johnson, J., Debnath, S., Rehg, J. M., & Wu, C.   CVPR 2024

11. ZeroShape: Regression-based Zero-shot Shape Reconstruction
    **Huang, Z.***, Stojanov, S.*, Thai, A., Jampani, V., & Rehg, J. M.   CVPR 2024

12. 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

13. Low-shot Object Learning with Mutual Exclusivity Bias
    Thai, A., Humayun, A., Stojanov, S., **Huang, Z.**, Boote, B., & Rehg, J. M.   NeurIPS 2023 (Datasets and Benchmarks)

14. 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

15. Learning Dense Object Descriptors from Multiple Views for Low-shot Category Generalization
    Stojanov, S., Thai, A., **Huang, Z.**, & Rehg, J. M.   NeurIPS 2022

16. The Surprising Positive Knowledge Transfer in Continual 3D Object Shape Reconstruction
    Thai, A., Stojanov, S., **Huang, Z.**, & Rehg, J. M.   3DV 2021

17. Interpretable and Accurate Fine-grained Recognition via Region Grouping
    **Huang, Z.**, & Li, Y.   CVPR 2020 (Oral)

18. HMS-Net: Hierarchical Multi-scale Sparsity-invariant Network for Sparse Depth Completion
    **Huang, Z.**, Fan, J., Cheng, S., Yi, S., Wang, X., & Li, H.   IEEE Trans. on Image Processing, 2019

## Selected Honors & Awards

- Member of **Doctoral Consortium at CVPR 2025**   2025
- **Google Gift Funding**: supports my research on 3D reconstruction   2022
- **UW-Madison CS Scholarship**: outstanding students admitted in Fall 2018   2018, 2019
- **USTC Outstanding Student Scholarship**: gold tier, top 4% of cohort   2017
- **Institute of Electronics of Chinese Academy of Sciences Scholarship**: top 5% of cohort   2016
- **Special Class for the Gifted Young**: 1 out of 43 young talented students selected nationalwise   2014

## Professional Activities

**Reviewing for:**
- Computer Vision and Pattern Recognition (CVPR)
- European Conference on Computer Vision (ECCV)
- International Conference on Computer Vision (ICCV)
- Neural Information Processing Systems (NeurIPS)
- IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI)

## Skills

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