HUIBIN LI
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EDUCATION

M.Eng. University of Chinese Academy of Sciences Beijing, China 📍 📅 Sep 2021 ▸ Jun 2024

#73 in CWUR World University, #3 National University Rankings 2023.
*School of **Artificial intelligence***
Institute of Automation, Chinese Academy of Sciences (CASIA)
***Mentored by** 🔗 Dr. [Jianwei Guo]*
Major in Artificial intelligence; GPA: 3.87/4
Core Courses: Pattern Recognition Machine Learning, Parallel Computing, Computer Vision Algorithms and Applications
Deep Learning, Natural Language Processing and Applications

B.S. Yancheng Institute of Technology JiangSu, China 📍 📅 Sep 2011 ▸ Jun 2015

School of Information
Major in Computer Science and Technology; Top 10%
Core Courses: Discrete Mathematics, Data Structure, Principles of Compiling, C Programming Language

OBJECTIVE

To continue my professional development in the field of **3D AIGC**, with a particular focus on addressing and solving challenges related to the consistency of three-dimensional information. Eager to apply my expertise and innovative approaches to contribute to the advancement of this evolving and dynamic sector.

SKILLS

</> Programming Languages	📖 Frameworks	📖 Open Libraries	⑂ Software	📖 Language
Python ▪️	Pytorch ▪️	OpenCV ▪️	Blender ▪️	IELTS 6.5
Java ▪️	TensorFlow ▪️	OpenGL ▪️	Unity ▪️	
C++ ▪️	Docker ▪️		Git ▪️	

PERSONAL STATEMENT

I possess six years of work experience in AIOPS (AI for IT Operations) and APM (Application Performance Management) fields, where I have applied statistical methods and deep learning technologies to assist businesses with large-scale (tens of millions) and real-time analysis of server data. Additionally, I have spent three years at CASIA, a leading research entity in China, focusing on 3D intelligence research. This work primarily involves utilizing deep learning and differentiable rendering frameworks for texture mapping studies. Currently, I am delving into texture generation by employing diffusion models, aiming to achieve solving challenges related to the consistency of three-dimensional information.

In the past two years, there has been a significant number of papers in the field of 3D generation. In terms of model generation, there are works focusing on different main directions such as based on SDF, voxels, or NeRF. On the models side, authors have experimented with models like VAEs , Flow-based models, Diffusion models, and GANs. However, the final generated results often depend on the underlying data representation. For instance, generation based on SDF frequently includes unwanted smoothness, which leads me to believe that there is substantial space for research in foundational data representation. Furthermore, using synthetic data for 3D super-resolution is another promising research direction.

Additionally, I am interested in researching on consistency in texture mapping. Recent papers primarily focus on optimizing two directions: the Multi-face Janus Problem and the Content Drift Problem. As pointed out by the author of zero123, the main issue with the former is the uneven distribution of image data in datasets, with an abundance of front-facing images and a scarcity of back-facing ones, leading to biases in trained models. To address this, I aim to collect more 3D perception data using a Blender plugin I am currently developing, which will be used for training to help solve this issue.Furthermore, I am also looking into resolving the Content Drift Problem through a training method akin to "text-to-video", utilizing the cross-attention mechanism of Transformers to ensure cross-frame consistency.

Otherwise, I am also an active contributor to the open-source community, with contributions to projects including colmap, zero123, EAGLE, scikit-learn-intelex, crfill and so on. Click ⓞ to see more.

AI Lab Intern
WELL-LINK   Beijing, China 📍   📅 Nov 2023 ▸ Present

- Reproduce and optimize a algorithm based on SDF-StyleGAN, and implement an interpolation algorithm for 3D mesh, allowing users to interact with a visual interface.
- Develop a mesh reduction tool based on Blender, allowing for the maximum reduction of the number of faces with minimal change in mesh information. In experiments, reduce the number of faces to 10% of the high-poly model.
- Develop a addon based on Blender that interacts with Stable Diffusion, allowing users to quickly apply textures from ComfyUI.

Master student
Institute of Automation   Beijing, China 📍   📅 Sep 2021 ▸ Present

- Implemented research on UV mapping using the Pytorch3D differentiable rendering framework
  - Optimized the underlying code of the Adam optimizer, addressing the issue of inconsistent convergence rates in UV space caused by PyTorch during backpropagation.
  - After the texturing process, used inpainting techniques to fill in areas not captured by the drone, resulting in a more complete model.
  - Employed super-resolution techniques to enhance the clarity of the model textures.
- Optimized the texture functionality of OpenMVS to accommodate texture operations under various coordinate systems, include colmap, opencv, pytorch3d
- Third author of **Unsupervised CAD Reconstruction by Learning Sketch-based Feature Modeling Operations** CVPR 2024, Accepted

Algorithm Engineer
TingYun   Beijing, China 📍   📅 Jan 2015 ▸ Sep 2021

- Developed a URL streaming aggregation algorithm based on entropy representation
- Developed a multi-segment polynomial quantile algorithm.
- Developed a monthly active user prediction algorithm.
- Awarded a patent **CN112116381A** titled "Moon life prediction method based on LSTM neural network, storage medium and computer equipment".

OTHER PROJECTS

Translation Model based on GPT3.5   📅 Jun 2023 ▸ Jul 2023

- In collaboration with a pharmaceutical translation company, utilized the existing corpus of a pharmaceutical company and employed the fine-tuning functionality of GPT to achieve specialized translation of pharmaceutical instructions.

Knowledge quiz bots   📅 Jun 2023 ▸ Jul 2023

- In collaboration with the Institutes of Science and Development, developed a conversational strategic consulting bot, click here Chat bot to try.

HR Q and A Bot   📅 Jun 2023 ▸ Jul 2023

- In collaboration with Meituan and Kuaishou, developed a WeChat-based question-and-answer bot designed to assist HR in swiftly addressing inquiries from campus recruits

AI commentator for China's 2023 National Science and Technology Week 📅 23 May 2023

- Participated in a live broadcast hosted for the AI region by a local Beijing television station.

Cooperator for Beijing Institute of Architectural Design 📅 Sep 2023

- In partnership with this design institute, utilized Stable Diffusion to generate architectural design blueprint

Host for internal events at the Institute of Automation 📅 Mar 2022

- Hosted a dialogue event which topic about AI and film with Bo Yihang, professor from the Beijing Film Academy.
- Hosted an antibiotic science popularization event with Ye Sheng, professor from Beihang University in Beijing.
- Hosted a Huawei PanGu large model event with its leader Jianlong Chang

Participated in organizing the 2022 - 4th Beijing Universities AI Academic Forum 📅 Apr 2022
Participated in organizing the 2021 AI Youth Academic Forum. 📅 Jan 2022
Leader of the Interdisciplinary Sharing Society at the CASIA 📅 Apr 2022

AWARDS AND HONORS

Three Badminton Doubles Champions at CASIA ☑ Oct 2022

Achieved 16th place in the 2nd AIOPS Competition ☑ Oct 2019

Sixth place in the WeGene Programming Competition ☑ Oct 2018

First Prize in the National Competition of the 5th Lanqiao Cup ☑ Sep 2014
Second Prize in the Jiangsu Region Mathematical Modeling Contest. ☑ Sep 2014

Undergraduate Scholarships ☑ Sep 2012