Rohit Das

rohitdasai.879@gmail.com | https://rohit7044.github.io/ |+91-7044168536 | Tripura, India

Education

Masters in Science (Computer Science) *2021-2023*
National Taiwan Normal University
Specialization: Computer Vision, 3D Vision, Neural Rendering
CGPA: 3.8/4.3
Master's Thesis: 3DGANTex: 3D Face Reconstruction with StyleGAN3-based Texture Synthesis from Multi-View Images

Bachelor of Technology in Computer Science *2014-2018*
Camellia Institute of Technology
DGPA: 6.62/10
Relevant Courses: Computer Programming, Discrete Mathematics, Computer Graphics, Artificial Intelligence

Research Experience

Master's Research *2021-2023*
3D Face Reconstruction with texture from single 2D image
- Worked on SOTA techniques on 3D Reconstruction, 3D Vision.
- Developed a novel method for 3D face texture estimation using StyleGAN3 and 3D Dense Face Alignment (3DDFA).

Junior Researcher | CI3D Lab *Taipei City, Taiwan | Jan 2022 – June 2023*
- Worked closely with Professor Tzung-Han Lin to research and develop innovative 3D face modelling techniques, focusing on texture reconstruction and neural rendering using state-of-the-art AI vision models.
- Published a research poster on normal map estimation on 2D images at 3DSA 2022, contributing to the advancement of 3D vision technology.
- Assisted in organizing weekly lab meetings and presentations, fostering collaboration and knowledge sharing among research team members.

Junior Researcher | DCCV Lab *Taipei City, Taiwan | Oct 2021 - Dec 2021*
- Conducted research under Professor Chiou-Shann Fuh, focusing on 2D reconstruction of solder balls for industrial applications, specifically using Sinogram images to improve defect inspection.
- Implemented and optimized the Simultaneous Algebraic Reconstruction Technique (SART) over the traditional Filtered Back Projection (FBP) method, achieving more accurate 2D reconstructions with higher resolution and fewer artifacts.

Professional Experience

AI Engineer (Freelance) | Estilo-AI *Remote | Aug 2024 - Oct 2024*
- Collaborated with the CEO on virtual try-on systems for 2D human images and created a novel pipeline to segment various parts of the human body with computation time under 8 seconds.
- Led the AI team and implemented various AI-driven solutions for business operations.

AI Engineer (Freelance) | Global Digital MOJO Group *Remote | Jan 2024 - July 2024*
- Created a survey on explainable AI usage and its future implications.
- Collaborated with senior management, including managers and the president, to align AI strategies with company goals.

AI Engineer (Intern) | Bifrost AI *Remote | Sept 2023 - Feb 2024*
- Deployed advanced solutions for texture generation from textual descriptions, significantly reducing computation times from hours to minutes.
- Collaborated with cross-functional teams, including software engineers and product managers, to integrate State-of-the-Art features into products for real-time use.

Teaching Assistant | National Taiwan Normal University *Taipei City, Taiwan | June 2022 - Dec 2022*

- Supported Professor Mei Chen-Yeh in teaching "Artificial Neural Networks" course, guiding over 100 undergraduate students by handling assignments and problem-solving sessions over email.
- Managed the grading of homework assignments, ensuring timely feedback and providing detailed explanations to help students improve their understanding of course material.
- Organized student presentations, providing feedback on research topics related to neural networks, deep learning, and computer vision, which enhanced their academic performance and project development skills.

Automation Engineer | BAAR Technologies *Kolkata, India | Aug 2019 - Dec 2019*

- Implemented cutting-edge automation technologies focusing on web and process automation.

Service Engineer | Mazel Infratech Technologies *Kolkata, India | Aug 2018- Sep 2021*

- Maintenance and troubleshooting various projects

Projects

FasTEX - Fast Text to Texture Generation

- Developed an advanced pipeline for generating textures for 3D models using Stable Diffusion and ControlNet.
- The system process multi-view captures and produces refined textures through interpolation and post-processing.
- The pipeline deemed to be the fastest in the market creating texture under 90 seconds

3DGANTex - 3D Face Reconstruction

- Designed a novel method for 3D face texture estimation using StyleGAN3 and 3D Dense Face Alignment.
- The system generates multi-view faces from a single image and uses 3DDFA to create high-resolution texture maps consistent with the estimated 3D face shape.

Mesh from Video

- Designed a novel method for 3D face texture estimation using 3DDFA-V3.
- The pipeline generates faces from each frame and passes it through 3DDFA to estimate the face shape.
- The pipeline also tries to estimate blendshapes from a subset of meshes but fails to do so due to dependence on FLAME coefficients

Acne Detection using YOLO-V11

- Designed a novel method for acne detection using Yolov11.
- The result though accurate fails to generalize on in-the-wild images due to lack of data.

Publications

A Survey of the Normal Map Generator of GIMP from Single Shot Human Face Image 3DSA, 2022

- The study explores the generation of near-accurate normal maps from a single image of a human face using the Flickr-Faces-High-Quality dataset and GIMP.
- The research demonstrated effective methods for producing normal maps, contributing to advancements in texture mapping technologies.

3D-GANTex: 3D Face Reconstruction with StyleGAN3-based Multi-View Images and 3DDFA based Mesh Generation

- A novel method utilizing StyleGAN and 3DMM to generate front face mesh from single 2D pose image.
- The pipeline achieved near to accurate texture from a single 2D mesh and helps in predicting unseen regions of the face.

Technical Skills

- **Languages:** Python
- **Libraries & Frameworks:** Pytorch, Pytorch3D, OpenCV, Open3D
- **Version Control:** Git, GitHub
- **3D Vision & AI Concepts:** 3D Reconstruction, StyleGAN, ControlNet, Neural Rendering, NeRF, Gaussian Splatting

Awards and Accomplishment

NTNU Scholarship: Awarded a scholarship for pursuing master's in Computer Science at National Taiwan Normal University (NTNU), demonstrating a commitment to advancing research in AI.

Seminar at Techno College India: Organized a seminar for the young undergrad students and explained about harnessing Generative AI in Computer Graphics field.