

KUNWAR MAHEEP SINGH

Computer Science Engineer, B.Tech (2019-2023)

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EXPERIENCE

Product Intern

Adobe

May 2022 – July 2022 Remote

- Training a **Variational Auto Encoder** with **clickstream data**.
- Learning this data in a **regularized manner** leads to many applications like causal inference, next action prediction, auto segmentation, behavioral sketches for downstream personalization task, etc.

Student Software Developer

SIMDe (Google Summer of Code)

June 2021 – August 2021 Remote

- Implementing **native and portable AVX512 instructions in C** on unsupported hardware using instructions which are available, **minimizing** or even **eliminating performance losses**.
- Added **tests for implementations across compilers** including gcc, clang, icc, MSVC.

EDUCATION

B.Tech (Honours), Computer Science and Engineering

IIIT-Hyderabad (CGPA 8.75/10)

July 2019 – June 2023

- Pursuing honours under **Dr. Avinash Sharma** at the Centre for Visual Information and Technology.

RESEARCH PROJECTS

4DHumans | Computer Vision, 3D Temporal Human Capture (link)

October 2021 – March 2023

- Developed a **novel and innovative depth-based RGBD camera calibration** method.
- Designed and implemented a method for **correcting RGB and depth misalignment in Azure Kinect Cameras**.
- Implemented the **Fusion4D** method by **Microsoft Research** for non-rigid fusion for multiview temporal human data capture system.

3D Virtual Tryon Dataset | Computer Vision, 3D Virtual Tryon

February 2023 – March 2023

- Created a **dataset for 3D virtual tryon** that encompassed static human models adorned in various poses of the same garment, along with diverse body types wearing identical garments.
- It comprised 250 meshes, featuring 15 subjects and encompassing 44 distinct garment types, including loose garments like skirts and *dhotis*.

PROJECTS

Raytracer | Computer Graphics, Rendering

October 2022 – November 2022

- A minimal GPU-accelerated ray tracer written in OpenGL.
- Features include BRDF, BVH acceleration and more.

Dialogue Generation | NLP

February 2023 – March 2023

- **Fact editing in Large Language Models (LLMs)** finetuned for dialogue generation.

Anaphora Resolution | NLP

October 2022 – November 2022

- Finetuned an existing LLM using Code Mixed Social Media Texts to perform **anaphora resolution for local languages**.

C-Shell | C, Operating systems (link)

September 2020 – October 2020

- Bash like interpreter with support for **piping, redirection, process management and exit status indicator**.

Lenet from Scratch | Convolutional Neural Network, Computer Vision (link)

November 2021 – December 2021

- Implemented **Lenet-5** from scratch using numpy.

ACHIEVEMENTS

- Dean's List 2, IIIT-Hyderabad, Monsoon 2019 - awarded to top 10% students
- Merit List, IIIT-Hyderabad, Spring 2020 - awarded to top 30% students (only award for that semester)
- All India Rank of 474 in JEE Mains out of a million competitors.
- Qualified Regional Math Olympiad and Indian Olympiad Qualifier in Chemistry in 2018.

PUBLICATIONS

- *Anonymous Submission* (under review): Submitted to **ICCV 2023** as a co-author, proposing a self-supervised method for 3D garment retargeting in 3D space along with a real-world dataset for the same.
- *Estimating Effects with Latent Representations* (filed): Filed a **US patent** for learning clickstream data in a regularized manner using a Variational Auto Encoder.