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LinkedIn

Experienced XR/VR/AR graphics engineer skilled in real-time 3D/2D rendering, physics-based animation, visual computing, machine learning, and computational geometry.

Experience:

Company: **Stryker** **Duration:** Sept 2024-Current

Designation: **Senior Staff Engineer XR** Delivering high-performance visualization and interactive graphics for advanced robotic applications. Working on the visualisation pipeline of Stryker Mako robots.
Tech stack: **c++11, Obj C, Metal, Swift, VisionOS, Tile Shaders, Compute Shaders**

Company: **Valeo** **Duration:** Jul 2023-Sept 2024
Designation: **Lead Engineer**
Optimised vehicle graphics rendering for low power ECUs. Working in streamlining and render frame optimisation.Leading research related to mesh processing and correcting distortions in fish-eye camera output.
Tech stack: **c++11, Opengl-ES, glsl, EGL, PVR Tune, RenderDoc, ASPICE**

Company: **Snaptrude** **Duration:** Jan 2023-Jul 2023
Designation: **Senior Graphics Engineer**
Collaborated with the graphics R&D team to engineer a rapid prototyping platform for building architects. Innovated and implemented new features in the CAD software, such as real-time collaboration and advanced modelling tools, to enhance the platform's functionality and improve the design process.
Tech stack: **Babylon.Js, React.Js, Node.Js, GLSL, OpenGL-ES, Webgl, Three.Js**

Company: **Toshiba** **Duration:** Feb 2022-Jan 2023
Designation: **Senior Software Engineer**
I maintained an image processing library that facilitates the 3D reconstruction of specific anatomical structures, such as bones and organs, from 2D segmented biomedical images. This library enables doctors to accurately assess their patients' vulnerabilities and conditions.
Tech stack: **c++-11/17, python, ITK, VTK, Eigen, OpenGL, GLSL**

Company: **Indian Institute of Technology, Delhi** **Duration:** Nov 2018-Jan 2022
Designation: **Project Scientist**
Implemented a Virtual Reality based 3D surgical simulator. This simulator provides an immersive and realistic training environment for students studying neurosurgery, helping to develop the necessary skills and precision for this field of medicine.
Tech stack: **c++-11, OpenGL, Eigen, GLSL, libigl, boost, CGAL**
Tools: Blender, 3D-Slicer, BFF-parameterisation
*Implemented fast approximate algorithms for light transport using rasterization.
*Replicated immersive surgical scenes with complex deformable 3-D anatomies.
*Implemented mesh-walking for transfer of parameterization.
*Managed a team of exceptional undergraduate students who contributed to the project.
*Used ML-based texture synthesis techniques to approximate correct anatomical textures.
*Implemented Physics-based deformations and real-time tearing of thin membranes.

Company: Threadsol(now COATS Digital) **Duration:** Feb 2016-Jun2018
Designation: **Software Engineer**
Contributed to the Algorithm Development team that designed technical solutions for reducing garment waste in large-scale manufacturing industries. Developed Cut-Order Planning and other optimization algorithms to improve the efficiency of the production process and reduce the industry's carbon footprint.
Tech stack: **c++-11, Javascript, Ruby-On-Rails, Eigen, CGAL, Java**

Education:

Indian Institute of Technology, Delhi
Degree: MS(R), Information Technology, **Graduation:** 2024
CGPA: 8.3/10 Certificate
Specialization: Computer Graphics, Vision and Physics-Based Animation)

Banaras Hindu University, Varanasi
Degree: M.Sc, Computer Science, **Duration:** 2014-2016
CGPA: 9.12/10, Mark-sheet Certificate

University of Calcutta, Kolkata
Degree: B.Sc, Computer Science, (Honors), **Duration:** 2011-2014
Percentage: 77/100, Mark-sheet Rank-card
University Ranking: 10, Out of over 8k students.
School Grades: 10th Mark-sheet 12th, Mark-Sheet

Coursework: Numerical Algorithms, Computer Graphics, Computer Vision, Data Mining, Spl. Topics in Multimedia, Machine Learning, Image Processing, Advanced Computer Graphics, and Image processing.

Methodologies: Proficient in using **Git** for version control and experienced in working with **Agile** methodologies such as **Scrum** and **Kanban**. Adheres to the organization or application's coding guidelines, design patterns, and conventions.