Pulkit Juneja

https://pulkitjuneja.github.io/portfolio/

📞 585.505.9616 / ✉ pulkit.16296@gmail.com / 🔗 linkedin.com/in/pulkitjuneja16 / 📍 Rochester, NY

EXPERIENCE

Rochester Institute of Technology   Mar 2021 – Present
Research Assistant at Frameless Labs   Rochester, NY

- Working with **Prof. Joe Geigel** as an Unreal engine developer/network programmer for the **Mixed reality theatre** project which aims at creating shared mixed reality experiences for a live audience controllable externally.
- Responsible for developing the networking layer allowing scenes to be controlled externally and synced with multiple MR devices used by the audience.

McKinsey and Company   Jan 2017 – Sept 2020
Digital Analyst (SDE-II)   Bangalore, India

DevOps Automation:
- Developed a system to automate infrastructure deployment on Azure and AWS with the "click of a button". The system supported deployment of established architectures (like the Hub-Spoke) with built-in security features as well as project specific resources.
- Enabled user customization for deployments using editable JSON files.
- The system was used to accelerate and manage infrastructure deployment for internal and client projects saving McKinsey **several weeks of time.**

Self-Service Telecom Application:
- Developed and delivered a *platform* agnostic, customer-facing self-service application for a leading telecommunication client in Thailand. The app was built to enhance user experience and performance over the existing solution.
- Responsible for the development of the mobile application as well as the middleware backend systems such as user authentication and payments. The application has a **user-base of 10 million across Android and iOS.**

Gaze based VR Analytics:
- Spearheaded the design and development of a **gaze-based analytics tool** that puts the user in a VR environment and then collects data about where the user-focused more during the simulation thereby giving useful future insights viable for a variety of use cases.
- The tool was selected for **McKinsey's new ventures competition** and was considered as a potential client solution.

Zed Interactive   Dec 2016 – Jan 2017
Unity 3D developer Intern   New Delhi, India

- Created a proof-of-concept of a server to automate the process of creating a textured mesh of an object from its video recording using photogrammetry.
- The structure from motion technique was used for generating the point cloud while surface reconstruction was done using Mesh lab.

EDUCATION

Rochester Institute of Technology   Aug 2020 – May 2022
Master of Science in Game Design and Development, GPA 4.0   Rochester, NY

- **Relevant Coursework**: Console Development, Game Graphics Programming, AI for Gameplay, Game Engine Design and Development, Advanced Real Time Rendering Techniques (Independent study), Capstone Design.

Vellore Institute of Technology   Jun 2013 – May 2017
Bachelor of Technology in Computer Science and Engineering, CGPA 7.7/10   Vellore, India

SKILLS

Languages: C++, C#, JavaScript, Java, Python, Power Shell

Game Development and Graphics: Unreal Engine, Unity3D, OpenGL, Vulkan, GLSL, Nvidia Nsight, GNM and Razor CPU for PS4, Three.js, SFML

Application Development and DevOps: Node.js, Java spring, Docker, Apache Kafka, Kubernetes, Redis, CircleCI, MongoDB, Azure Cloud, React native (Android and IOS), Native android Java, React Js

Collaboration: Git, Perforce, Jira

PUBLICATIONS

Emotion-Driven Facial Animation for Chat-Bots, IJRTE 2019

This paper presents a methodology to create an emotionally expressive virtual AI that understands the sentiment of theconversation and displays emotions accordingly. To achieve this, the system uses a generative chatbot and combined itwith a 3D talking head that is animated parametrically.

Context Aware Clustering Using Glove and K-Means, IJSEA 2017

In this research paper, we proposed a method for context sensitive clustering of categorical data using Stanford's GloVe(Global Vectors for Word Representation) word embedding. This was done by combining GloVe with dimensionality reduction techniques like t-SNE along with the K-means clustering algorithm.

NOTABLE PROJECTS

Glen

An **OpenGl, C++** based game engine with focus on rendering. Current features of the project include: Forward/Deferred/Tiled Forward rendering paths, cascaded shadow mapping, Physically based shading with Image based lighting, Skybox rendering, screen space reflections, Temporal Anti-aliasing, Debug Draw, Nvidia PhysX integration, ImGUI based UI withlogging integration, custom memory management and traditional entity component based architecture.

Procedural Planets

A fully customizable procedural planet generator created using **Unity3D and C#,** inspired by No mans sky and Outer wilds.Features include GPU accelerated heightmap generation, moisture and temperature-based biome generation, distance based Dynamic LOD switching, object and vegetation placement and Triplanar texture mapping.

Magnetic

A 2d Arcade game developed using **Unity3D and C#** where the user controls a magnet falling down a drain full of objects that will attract (or repel) you. The goal is to fall as far as it can without getting stuck. The idea for the game was conceived during a game jam and it was later polished and published to the android play store.

VITAcademics

VIT-Academics is a self-service application that allows students of VIT University to check and monitor their timetable,marks, attendance, and grades. The application currently has over 10,000 users. I worked on developing the **android application** as well as contributed to the **Node.js based backend.**

Rays

A Ray tracing engine written in C++ using a recursive Monte-Carlo Raytracing algorithm. The engine supports rendering spheres with three different materials (Lambertian, metallic and dielectric), a position able camera and a multithreaded workflow.

LEADERSHIP AND EXTRA-CURRICULARS

- **1st** - Mckinsey Digital Labs Internal Hackathon - Developed a Gaze-based analytics tool that puts the user in a VR environment and then collects data about where the user focused more during the simulation.
- **4th** - Angel Hack Delhi 2016 - Implemented a business card sharing app allowing people to communicate without using physical business cards at networking events.
- **Top 5** - WeHack VIT 2015 - Prototyped an automated Geo-spatial survey portal.
- Technical Mentor for computer society of India - VIT Chapter (2015 - 2016).
- Microsoft Student Partner from 2015 – 2016.