Siddharth Chillale

Software Development Engineer

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EDUCATION

Master of Science in Computer Science — Expected: Feb 2023
University at Buffalo, The State University of New York, — Buffalo, NY
Coursework -**Operating Systems**, **Distributed Systems**, Analysis of Algorithms, **Modern Networking Systems**, **Database Systems**.

Bachelor of Technology in Computer Science — Graduated: 2021
Indian Institute of Information Technology, Tiruchirappalli (IIIT) — Trichy, India
Coursework - Database Management Systems, Design and analysis of **Parallel algorithms**, **Computer Architecture**, Principles of compiler design.

TECHNICAL SKILLS

Programming Languages : **C/ C++** (proficient) , **Python** (fluent), **SQL**, **Javascript**
Software Libraries : **Direct3D, Nvidia CUDA,** Pandas, Numpy, Matplotlib, Win32
Other Software Tools : Git, Trello, **MS Visual Studio**, Linux, Windows, MYSQL, **GNU Debugger**, Jupyter
Game Engine : Unreal Engine 4, Godot game engine

TECHNICAL EXPERIENCE

Data Analyst Intern, Shaadi.com, Remote *[Python, git, MS Excel]* — 04/2020 - 06/2020

- Built an end-to-end pipeline for extraction, parsing and transformation of **300+** reports and loading into a visual frontend for analysis on domestic and international flights for the past 4 years from the website of Airports Authority of India (AAI).
- Improved workflow efficiency by **20%** through automating pipeline for transformation from PDFs to CSVs.
- Prepared analysis reports from the gathered data gauging the effect of the COVID-19 pandemic on the economy of air travel.

ACADEMIC PROJECTS

Relational Database Engine (Taco-DB) *[C++, gdb, linux] under Dr. Zhuoyue Zhao* — 02/2022 - 05/2022

- Ensured the correct working of database systems like **storage managements system**, **query processing** and **query optimization** by developing the RDBMS codebase against **200+** test cases using GoogleTest.
- Implemented database operations like join operations, aggregation, database caching and indexing implemented using B-Tree.

Stanford PintOS Operating System *[C++, gdb, linux, git] under Dr. Farshad Ghanei* — 09/2021 - 12/2021

- Implemented various operating systems scheduling algorithms like **priority scheduling**, **priority donation** using **MutiLevel Feedback Queue System** for kernel threads.
- Tested the operating system against a provided test suite of **150+** test cases along with custom test cases.
- Accomplished support for user programs by implementation of kernel system calls and a virtual file system successfully.

MeshEditor *[C++, Visual Studio, windows] under Dr. JingJing Meng* — 09/2021 - 12/2021

- Developed local mesh operations including vertex operations, edge operations, face operations on 3D Mesh Models.
- Developed global mesh operations such as **Loop Subdivision** and **Triangulation**.

PERSONAL PROJECTS

Cofe Rendering Engine *[Visual Studio, C++, MS DirectX API]* — 01/2022 - 08/2022

- Designed and integrated 3D deferred shading graphics pipeline using Direct3D 11 API.
- Implemented **Mesh loading, Frustum culling, Gouraud shading, Phong lighting, Texture Mapping**.

PathTracing Engine using CUDA — 05/2022 - 08/2022

- Implemented Montecarlo software path tracing using importance sampling showcasing direct and indirect illumination.
- Achieved **10x** faster render times upon accelerating the engine using NVIDIA CUDA along with Bounding Volume Hierarchy.
- Implemented features like antialiasing, support for diffuse, metal and dielectric materials, texture mapping with images, perlin noise and patterns, volume rendering, with direct and indirect illumination.

VOLUNTEER WORK

- Introduced **20** diverse professionals to programming with python under **Dr. Jyotikrishna Dass** at Texas A&M University, TX. Assisted in organizing the curriculum and preparation of the course materials.
- Co-founded HacktoberFest chapter at the Indian Institute of Information Technology, Trichy, TN, IN and mentored **~50** individuals towards open-source contribution.