Manas **Chaudhary**

Undergrad at IIT Roorkee

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Summary

Senior at IIT Roorkee. Aspiring game developer and cyber-security enthusiast with experience in Information Security, Computer Graphics, Game development/VR/AR along with bits of Web Development.

Projects

Rootex

C++17, DirectX, Bullet

- An advanced game engine with support for 3D games as a collaboration under SDSLabs, covered by GamesFromScratch in a Youtube Video
- Uses a modern ECS architecture, an in-house built rendering engine atop the Direct3D11 API, a visual level editor using ImGui, Lua based scripting API
- Rendering capacities include phong shading, normal mapping, custom post process/vertex/pixel shaders, hardware instancing, LOD generation, skeletal animations, skybox based reflection/refraction
- Special focus on the game to be built atop Rootex rather than building a generalised engine

xrdesktop

C, GLib, Vulkan

- A library for XR interaction with classical desktop compositors on linux
- Added 3D rendering capabilities to the Vulkan pipeline
- Wrote a glTF loader to enable users to load custom environment scenes for their virtual desktop experience

Outrun Chase

Godot

- An outrun themed, multiplayer, cross-platform, thrilling racing + shooting game
- Built on the open source Godot engine during a hackathon and then extended to a full fledged game, presented in GodotCon 2021
- I led the project, worked on adding all the VFX and constructing the maps. The entire game has been documented here.

Pwnhub

Flask, Go, Ethereum, Docker, React

- Platform for bug bounty hunters to host their exploits and provide PoCs without revealing the vulnerability
- Allows corporates to supply test cases which are ran on the exploit provided by bug bounty hunters, automatic transfer of funds to the hunter and exploit script to the corporate if the test cases pass
- Microservices architecture with a Golang server running exploits/test cases in a docker container, a Flask server for the web app backend and a React for the frontend

CTF Profile

I do all categories in CTFs with Reverse Engineering being my biggest forte. I have also made a few challenges on Backdoor CTF platform.

2021	**1st globally**, CSAW ESC World Finals, part of team SDSLabs	*Online*
2021	**2nd in India, 15th globally**, CSAW CTF World Finals, part of team SDSLabs	*Online*
2021	**Completed all 10 levels with 353 rank**, Flare-On challenge by FireEye	*Online*
2021	**Ranked 14, Will represent India in team Asia for the ICC CTF world finals 2022**, ACSC CTF Qualification	*Online*
2021	**2nd in India, 17th in world**, CSAW CTF Qualification, part of team SDSLabs	*Online*
2020	**Honorable Diploma, 2nd in India**, International Cryptography Olympiad Round 2	*Online*
2020	**Ranked 14th in world**, CSAW CTF 2020, part of team InfosecIITR	*Online*
2020	**Ranked 3rd in world**, CSAW ESC 2020, part of team SDSLabs	*Online*
2020	**Ranked First**, Cisco SecCon CTF, part of team InfosecIITR	*Online*
2020	**Ranked 2nd**, Github CTF 2020	*Online*
2020	**Global Winners**, Cipher Text CTF 2020, part of team SDSLabs	*Online*
2020	**Ranked 6th**, Cipher Combat 2.0 CTF	*HackerEarth*
2019	**Ranked 5th in India**, CSAW CTF 2019, part of team SDSLabs	*India*

Achievements

2021	**Third Prize**, Reach Universities Unchained Bounty Hack	*Online*
2020	**Blockchain Track Winner(Portis)**, Hackinout 7.0	*Online*
2020	**Runner up - Gaming Apps Category**, Hackathon Atmnirbhar Bharat 59	*Online*
2019	**Gold Medal**, Coding Hackathon, Inter IIT Tech Meet 2019	*IIT Roorkee*
2019	**Runner up**, Microsoft Codefundo++ 2019	*IIT Roorkee*
2018	**All India Rank 991**, KVPY Fellowship 2017	*India*

Experience

Collabora

Graphics Programming Intern — *Winter 2021*

- Working on Panfrost, an open source graphics driver for the ARM Mali GPUs part of mesa3d, the mainstream graphics drivers for Linux.
- Implemented Vulkan secondary command buffers and added support for Compute pipelines for these GPUs.

Google Summer of Code 2021

GSoC student under xrdesktop organisation — *Summer 2021*

- A library for XR interaction with classical desktop compositors on Linux.
- Added support for 3D model rendering from glTF format allowing the users to load custom environment scenes along with their virtual workspace in VR.

Microsoft

Microsoft India

Software Engineering Intern — *Summer 2021*

- Techstack: C#, .Net, Azure Kuberenetes Service, KEDA, Windows Docker Containers
- Exact details of the project non-disclosable under an NDA

Terasology Summer of Code 2020

TSoC student under the Terasology Foundation — *Summer 2020*

- Worked on improving the procedurally generated worlds of Terasology by adding more terrain features- volcanoes, oasis, flying islands and flattened seabeds.
- Added a game mode that allows better debugging by pausing the game time and suspending the user in the game to enable easy observation and deduction.

Microsoft

Microsoft India

Software Engineering Intern — *Summer 2020*

- Techstack: C#, .Net, React, Redux, officefluentUI, AzureCloud, AzureDevOps, AzureDatalake
- Exact details of the project non-disclosable under an NDA

Skills

General	Python, Javascript, Typescript, C, C++, C#, Java, X86 Assembly, Visual Studio, IntelliJ
Gamedev / VR / AR	Unity, Unreal Engine 4, Godot, Blender, Google ARCore, Terasology
Graphics Programming	Direct 3D 11, Vulkan, graphics.h, Win32, ImGui
Security	IDA Pro, Ghidra, dotPeek, pwntools, gdb, wireshark
Web Development	Vue.js, ReactJs, Apache Cordova, Flask, Sqlite

Extracurricular Activity

SDSLabs | Software Development Section, IIT Roorkee

Secretary

https://sdslabs.co/ — *November 2018 - present*

- Actively participate in group meetings, internal hackathons, organised events/lectures
- Participated and won external hackathons and CTFs

InfosecIITR, IIT Roorkee

Member

https://infoseciitr.in/ — *November 2018 - present*

- Active participation in CTFs
- Lectures/CTFs to promote Information Security in campus

The Terasology Foundation

Maintainer

https://github.com/MovingBlocks/Terasology — *January 2020 - present*

- The Terasology project was born from a Minecraft-inspired tech demo and is becoming a stable platform for various types of gameplay settings in a voxel world.
- My contributions involve fixing bugs in gameplay modules and working towards improving/adding to the world generation algorithms it provides.