

# 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](#).

### Backdoor

🔧 🌐 PHP

- Information security platform hosting CTF challenges and competitions, created by SDSLabs
- Co-maintainer of the platform
- Written in PHP, based on the MVC architecture

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

## Achievements

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

## Experience

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### 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

### 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 2021

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

### 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.

### Collabora

GRAPHICS PROGRAMMING INTERN

Winter 2021

- Working on Panfrost, an open source graphics driver for the ARM Mali GPUs part of mesa3d, the main graphics library for Linux.
- Implementing secondary command buffer by copying the commands into the primary command buffer as these GPUs don't support secondary command buffers.

## Skills

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

## Extracurricular Activity

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### SDSLabs | Software Development Section, IIT Roorkee

Secretary

[HTTPS://SDSLABS.CO/](https://sds-labs.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/](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](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.