

# Aniket Rajnish

Third Year Undergraduate

IIT Gandhinagar

Computer Graphics | Game Development | VFX & Video Editing

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## Education

| Degree | Institution     | CPI/% | Year           |
|--------|-----------------|-------|----------------|
| B.Tech | IIT Gandhinagar | 7.83  | 2019 - Present |

## Experience

- **Game Developer, [CrazyLabs](#) (3rd biggest mobile game publisher)** [Aug 2021- Present]
  - Contracting as a partner game studio to help create scalable hypercasual games by looking after the ideation and development aspect of the games. The projects I've worked on till now are listed [here](#).
  - The source code and the build for the games can't be shared publicly as this comes under NDA.
- **Technical Design intern, [FIEA, University of Central Florida](#)** [May 2022- Present]
  - Assisting the 19SOB team at FIEA with their capstone project as a tech designer under the guidance of Prof. Ron Weaver. The development update to the game can be found [here](#).

## POR

- **Secretary, [DigiS IITGn](#) (Game development club of IITGn)** [Aug 2020 - Apr 2021]
  - Led a team of over 100 game developers and taught them the basics of Unity & Game Development.
  - Organized an AR workshop attended by 300 people from IIT Bombay, IIT Hyderabad, IIT Gandhinagar.
  - Organized [GameJam 2020 AD](#) in collaboration with Amalthea IIT Gandhinagar. 600+ people participated to make 90+ games making it the third biggest Indian game jam to be held on itch.
- **Technical Coordinator, IIT Gandhinagar** [Apr 2021 - Present]
  - Leading a team of 10 people to assist the Technical Secretary to conduct the Technical activities held at IITGN efficiently by overlooking the functioning of all the technical clubs and events.
- **Eureka Video Coordinator** [August 2019]
  - Led a team of 12 video editors that made the [Foundation Programme Video](#) of Btech'19, IITGn.

## Skill Summary

- **Languages:** C#, HLSL, GLSL, C++, C, Python
- **Tools:** Unity, OpenGL, MATLAB, GameMaker Studio 2, Autodesk Inventor, Autodesk Fusion 360, Adobe Premiere Pro, Adobe After Effects, Photoshop, Blender, Adobe XD

## Projects

- **[Raymarching Engine](#)**
  - Currently developing a raymarching engine for Unity that would allow rendering complex geometry like fractals, n-dimensional objects, volumetric clouds, etc. using very little computation costs.
  - Implemented computer buffers, raymarching sdfs, and a custom editor in Unity.
- **[3D Render using Gaussian elimination](#)**
  - Mathematically modeled and implemented a 3D rendering technique that uses numerical methods to calculate the intersection of planes and render 3D objects as a part of the MA202 project course.
- **[Rendering a 4D Hypercube](#)**
  - Demonstrated a 3D section of a rotating 4D Hypercube (with hardcoded coordinates) by using rotation and projection matrices as a part of the MA202 project course.
  - Extended this approach to render the [4D Hypercube \(with faces\) in Unity](#) using mesh generation and GL Library. Created an [NFT collection](#) of these 4D Hypercubes as well.
- **[Specular Lighting in OpenGL](#)**
  - Implemented specular lighting in OpenGL by following tutorials from [Michael Grieco](#).
- **[Raycast 3D Renderer](#)**
  - Developed a 3D renderer in Scratch using the traditional concept of raycasting used in games like VOP2 and Wolfenstein 3D. Implemented features like varying camera FOV & shadow mapping.
  - Any 2D map you input gets converted into a 3D world that gets procedurally generated around you.
- **[Project Holly](#)**
  - Built a platform for interactive movies to unify games and movies using Unity. Developed an asset that streams a video in small chunks based on choices made using Firebase.
- **[Jelly Physics in Unity](#)**
  - Jelly physics implemented in Unity using mesh deformation. Used this simulation in a [game](#) as well.
  - Extended this approach for slime simulation in Unity by decreasing the stiffness.
- **[Non-Euclidean World in Unity](#)**
  - Optical illusion made by using multiple intersecting single-sided planes instead of a 3d mesh.

- o Made [another non-euclidean world](#) using portals and layered camera texture on a plane.

## Games

- [Two Opposites](#)
  - o Developed in 7 days for the 2021 Brackeys Game Jam (with 10k+ participants). The game secured #22 rank in the innovation category, #44 in the Game Design category, and #71 overall.
  - o Programmed every mechanic of the game (mirror movement, multiple-camera setup, etc.)
  - o Developed my own 2d lighting system from scratch using raycasts. Repo [here](#).
- [Faster Than Light \(Hyper Casual\)](#)
  - o Won the Jamboost game jam hosted by [Chartboost](#) and a prize of 1000\$.
  - o Got 180\$ for promotion by [Kwalee](#) as it did fairly well in their CPI tests.
  - o Engineered every mechanic & enemy AI of the game and the lighting and shaders used in the game.
  - o Optimized time control mechanics and real-time indoor lighting for the mobile platforms. Repo [here](#).
- [Faster Than Light \(PC\)](#)
  - o Developed in 7 days for the 2020 Brackeys Game Jam (with 9k+ participants). Secured #71 rank in the Audio category and #132 overall.
  - o Engineered every mechanic & enemy AI of the game and the lighting and shaders used in the game.
  - o Implemented player physics from scratch that would allow the player to move in space independent of the world's timescale as well as the bullet-time mechanics.
- [Shoot The Numbers](#)
  - o Optimized multiple navmesh agents for mobile devices.
  - o Wrote a shader that supports both transparency and interpolation between two colors.
  - o Wrote swerve and algebraic gates mechanics trending in hypercasual games these days.
- [Hoof Cleaning ASMR](#)
  - o Wrote texture masking algorithm to erase/paint textures over meshes.

Find other games developed by me [here](#).

## Relevant Coursework

- **DES 492-1**- The course involved modding a pre-existing game, developing a sandbox-styled game, speculation of different permutations & combinations of different outcomes of the game, and development of a hypertext game with a non-linear branching story.
  - o [Modding Assignment - Maze Game made 3D](#)
  - o [Sandbox & Speculation Assignment - Joined Together](#)
  - o [Hypertext Assignment - Friday Hai](#)

## VFX & Edits

- [Shaders - GameJam 2020 AD Trailer](#)
  - o This shader used in the video uses one-sided features of multiple planes for a non-euclidean look.
  - o Also wrote a shader to replicate the look of HDRP reflective materials using Unity's built-in render pipeline and a reflection probe for the mascot and jar.
- [VFX Graphs - GameJam 2020 AD Theme Reveal Video](#)
  - o Used VFX graphs for the particles so everything that you see in this video is made out of '2020'.
- [Motion tracking in Blender and After Effects - Recreated Coldplay's Up&Up Music Video](#)
- [Particle System in Unity- Psychedelic Edit](#)
- [Particle System in Blender - Recreated Interstellar's Black Hole](#)
- [Twixtor in Adobe Premiere Pro - Blithchron 20 Teaser](#)
- [Particle System in Unity - Fractals](#)

## Achievements

- Top 0.4 percentile in JEE Mains 2019 out of 1.3 million students.
- Top 2 percentile in JEE Advanced 2019 out of 2 lakh students.
- One of the 100 students selected for [Chennai Mathematical Institute](#) in 2019.
- One of the 27 authors whose story was published in [Cobalt Blue](#) across a nationwide competition amongst all students of DPS across India.
- Ranked #22 in Brackeys Game Jam out of 10k+ participants.
- Won Jamboost game jam.