

Abhishek Agarwal

B. Tech. Engineering Physics with,
Minor in Computer Science and Engineering (CSE).
3rd Year, Indian Institute of Technology (IIT) Hyderabad

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Educations

BTech in Engineering Physics with a Minor in CSE (IIT Hyderabad)
CGPA: 8.61 / 10 (4 semesters) graduating June 2021

Intermediate (Class 12), ISC (From Seth MR Jaipuria School, Lucknow)
Percentage: 97%

High School (Class 10), ICSE (From Seth MR Jaipuria School, Lucknow)
Percentage: 95%

Skills

Programming (4-5 years of experience)

C, C++, Java, Python, JavaScript, GLSL

Physical process simulators

Pythia (Hadronic Collider Simulator)

Mathematical Analysis

Mathematica, NumPy, SciPy, Simulations

3D Technology Tools

Blender, Autodesk 3ds Max, Unity, Unreal

Experience

- Graphics Engineer** at [StoryXpress](#) ([Top 30 Forbes Under 30](#)) (joined November 2018)
Contributed to an in house OpenGL framework that produces ~150 automated videos every week.
Optimised rendering pipeline to reduce running times of video production by over 60%.
Replaced text rendering with a new system that was simpler to use and rendered crisper text.
- Web Coordinator, Anomalies 2019** ([iith.ac.in/~anomalies19/](#)) (Summer 2019)
Anomalies 2019 was the first Indo Us Workshop on High Energy Physics in IIT Hyderabad.
- Web Coordinator, Elan & Nvision 2019, the annual fest, IIT Hyderabad** (Winter 2018-19)
Wrote a backend for the registration. Developed a database to ensure the smooth functioning of many online events such as Cryptex, a big online treasure hunt (in terms of active participants ~ 1000 people played).
- Physics Research project on spin based particle differentiator (ongoing) at IIT Hyderabad** (started summer 2019)
Worked on at LHC like events to identify particle collision process by looking at the spin of product particles.
Working under the guidance of [Dr. Priyotosh Bandhyopadhyay](#), Assistant Professor, IITH.
- Overall Coordinator, Lambda**, the development club of IIT Hyderabad (May 2018 - May 2019)
Organised several technical teaching sessions, where students were invited to learn Git, OpenGL, OpenSource etc.
- Winner of Academic Excellence Award for highest CGPA**
For semester 3 and 4 (Fall 2018 and Spring 2019) in Department of Physics in my batch.
- Teaching Assistant** for Electric Circuits (Fall 2019), Digital Fabrication (Fall 2019) courses

Projects

3DMaybe ([github.com/drpeabody/3DMaybe](#))

A multithreaded game engine in Java over OpenGL

JSciiCam ([github.com/drpeabody/js-demo](#))

A JS video renderer where each frame is just text

Texas ([github.com/drpeabody/js-demo](#))

A JS text based adventure game

QFC ([github.com/drpeabody/qfc](#))

Quick Functional C, converts custom code into C

Gravity Sim ([github.com/drpeabody/GravitySim](#))

A 2D visual simulator of Newton's Law

Different Plot ([github.com/drpeabody/DifferentialPlotter](#))

A 2D visual first order differential eqn. plotter

Spin Discrimination at LHC like Events (ongoing)

Angle correlation analysis with simulators (Pythia)

Non-Linear Analysis of Growth of capacity of Universities

Assumptional work on the number of applicants

Relevant Courses

Computer Science Related:

Theory of Computation, Intro to Complexity Theory,
Data Structures 1 & 2, Algorithms,
Operating Systems 2

Physics Related:

Classical Mechanics, Classical Electrodynamics
Quantum Mechanics, Special Relativity
Thermodynamics, Tensor Analysis

Extracurricular:

- MIT OCW 8.04 **Quantum Physics 1** by Dr Barton Zwiebach
- MIT OCW 8.05 **Quantum Physics 2** by Dr Barton Zwiebach
- Introduction to String Theory** (first 10 Chapters) by Prof. Barton Zwiebach
- Introduction to Quantum Field Theory** (ongoing) by Prof. Michael Peskin
- Mathematical Group Theory and Construction of Real Numbers