



IISER Bhopal

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH BHOPAL

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Personal Statement

I am an Computer Science Undergrad at IISER Bhopal with a strong interest in Artificial Intelligence, Machine Learning and theoretical CS. My current research interests include Deep Generative Models and Novel Computer Vision Tasks. I am really interested in Diffusion models and the Score/SDE interpretation of them, I am working with the same as of now.

Research Experience

Research Intern at CVIT, IIIT Hyderabad, India

Apr, 2025 - Present

CVIT is one the foremost Academic Labs for research in Computer Vision in India

- Working under Prof. Ravi Kiran at CVIT
- I am broadly working on semantic image generation techniques using Diffusion Models, that translate structured layouts or object level specifications into realistic and diverse images.
- We generate structured layouts for images with part specifications, then using Conditional Diffusion based Modeling (conditioned on the generated layout) we generate diverse images.

Project Intern at JINR, Dubna

Feb, 2025 - Apr, 2025

Selected for the INTEREST Program

- Worked on application of CNNs to Particle Physics experiment (OPERA) carried out at CERN and JINR
- Built Visual Tools for the same and analysed of the Experiment Data.

Education and Achievements

Indian Institute of Science Education and Research, Bhopal (IISER-B)

Aug 2023 - Present

BS in Computer Science

- GPA: 8.98/10.0
- **Coursework:** Data Structures and Algorithms, Discrete Mathematics, Linear Algebra, Single Variable Calculus, Multivariable Calculus, Probability and Statistics, Programming with C, Complex Variables, Econometrics, Basic Electronics, Signals and Systems.
- **Activities:**
 - Recipient of Prestigious **Reliance UG Scholarship**
 - Winner of Institute wide Competitive Coding Contest
 - Member of IISERB Coding Community

Technologies and Skills

Languages : C++, C, Java, Python, Lua

Machine Learning : Supervised Learning, Unsupervised Learning, Deep Learning

Frameworks/Libraries: PyTorch, Numpy, Matplotlib, Scikit-learn, Tensorflow (beginner)

Software & Tools : Git, Github, LaTeX, AutoCAD, VS Code, Visual Studio

Web Development : HTML, CSS, JavaScript

Scientific Computing : MATLAB, Simulink

Projects

GravLensDiffusion

[github](#) 

- The Project aims to generate high quality images of Strong Gravitational Lensing.
- Implemented the DDPM model from scratch and trained it to generate images of Strong Gravitational Lensing.
- Achieved high accuracy in the Generation task despite limited compute resources. Evaluated using standard metric FID between the source images and generated images.
- Tools Used: Python,PyTorch,Root Software

GravLensNet

[github](#) 

- The Project aims to achieve high accuracy in classifying images of Strong Gravitational Lensing.
- Implemented custom ResNET architecture after reading the seminal paper "Deep Residual Learning for Image Recognition".
- Achieved high accuracy in Classifying Astronomical Data. Evaluated using standard metrics like ROC and AUC.
- Tools Used: Python,PyTorch,Root Software

Mystery_Maze : 2D Game in Java

[github](#) 

- A 2D Maze Navigation Game written in Java.
- Uses Depth First Search Algorithm to generate a new Maze in every Game.
- Timed Bomb mechanic
- AI enemy agent following the player
- Tools Used: Java

Set of 2D Games in Lua

[github](#) 

- I made a set of 2D Games using LOVE2D Engine and Lua , though these were for a course, I learned a lot about OOPS due to them.
- Tools Used: Lua, Love2D