

Soham Chitnis

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Education

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI

Goa, India

B.E(HONS.) IN COMPUTER SCIENCE WITH MINOR IN DATA SCIENCE

Oct. 2020 -Present

- **CGPA** - 8.6/10
- **Relevant Completed Coursework:** Computer Programming, Linear Algebra, Probability and Statistics, Calculus, Object-Oriented Programming, Data Structures and Algorithms
- **Relevant Ongoing Coursework:** Fundamentals of Data Science, Applied Statistical Methods
- **Teaching Assistant:** Computer Programming

Research Interests

Computer Vision, Reinforcement Learning, Graph Representation Learning, Cognitive Neuroscience

Research Experience

APP Center for AI Research, BITS Pilani

Goa, India

UNDERGRADUATE RESEARCHER

Feb. 2022 - Present

- **Project:** An interpretable deep-learning method for digital pathology image analysis
- **Supervisor:** Prof. Tanmay Verlekar, Prof. Ashwin Srinivasan
- Developing **interpretable deep-learning methods** for subtyping of glioma from Histopathology images
- Previously worked on Molecule Generation using **Graph Autoencoders & Variational Graph Autoencoders**.

Central Electronics Engineering Research Institute (CSIR-CEERI)

Chennai, India

RESEARCH INTERN | **CODE**

May. 2022 - July. 2022

- **Project:** Hyperspectral Imaging for Plastic Segregation
- **Supervisor:** Dr. Madan Kumar Lakshmanan, Dr. Amalin Prince A.
- Conducted **pre-processing** of data and **benchmarking** models.
- Built a **data augmentation** module for Hyperspectral Images.
- Implemented Deep CNNs for Hyperspectral Images
- Trained models using **Self-supervised learning** method: SimCLR

Teaching Experience

Introduction to Deep Learning, Quark Controls BITS Pilani Goa

Online

INSTRUCTOR

July. 2022 - August 2022

- Taught an introductory course on Deep learning with focus on Computer Vision and mentored freshman students in the final project.

Computer Programming, BITS Pilani

Goa, India

TEACHING ASSISTANT

May 2022 - August 2022

- Worked as Teaching Assistant for the course Computer Programming, which teaches C programming to freshman students
- Conducted doubt solving sessions, evaluated labs and assisted **Prof. Anup B Mathew & Prof. Arnab K Paul**.

Mathematics-I (Multivariate Calculus), Academic Assistance Program CTE

Goa, India

MENTOR

Dec 2021 - May 2022

- Mentored freshman students for the course Mathematics-I and helped them in solving doubts and understanding the concepts

Projects

Implementation of Super-Resolution ResNet(SRResNet) & Super-Resolution CNN(SRCNN)

March 2022

CODE

- Implemented **Super-Resolution CNN & Super-Resolution ResNet** with an upsampling factor of 2
- Conducted experiments and study on interpolation modes: **Bi-cubic**, **Bi-linear** and **Nearest Neighbour** and upsampling methods: **Sub-pixel** and **Transpose Convolutions**.

Comparative Study of Reward functions on Policy gradient

August 2021

CODE

- Conducted a comparative study on different reward functions with **Policy gradient** algorithm to find minima of two variable quadratic function

Robot for Autonomous Indoor Navigation

September - December 2021

CODE

- Deployed **Semantic Segmentation** model for Scene parsing on the robot Trotbot.
- Trained using MIT ADE20K Dataset

Project Kratos

August 2021-Present

WEBSITE

- Developing Mars Rover for the University Rover Challenge (URC). At URC 2022, the team stood 1st in India, 2nd in Asia and 20th globally.
- Working on Rock analysis using Computer Vision. Building a End-to-end Deep Learning model for detecting presence of life in rocks.

Bayesian Neural Network for Noisy XOR using Markov Chain Monte Carlo

March 2022

CODE

- Implemented Bayesian Neural Network using No-U-turn Sampler

Adversarial Deep Learning

September - December 2021

CODE

- Worked as Contributor to this Project. This project is a part of a book being written of same name where this project involves tutorials for the book.

MLDataset.jl

March 2022

CODE

- Worked as Contributor. Added PolBlogs Graph Datasets to Julia from Torch-geometric.

Online Courses & Summer Schools

2022	CS 285: Deep Reinforcement Learning (Ongoing) , UC Berkeley	Online
2022	AI Summer School , CVIT, IIT Hyderabad	Online
2022	Deep Learning Specialization , DeepLearning.AI	Online
2022	CS231n-Deep Learning for Computer Vision , Stanford	Online
2022	Building Transformer-Based Natural Language Processing Applications , NVIDIA Deep Learning Institute	Online
2021	Machine Learning , Coursera	Online
2021	Fundamentals of Deep learning , NVIDIA Deep Learning Institute	Online

Skills

- **Languages:** Python, C/C++, Java
- **Frameworks:** PyTorch, Tensorflow, Keras
- **Tools:** Git, Linux
- **Python Libraries:** Numpy, Scipy, OpenCV, Matplotlib, Pandas, Scikit-Learn

Honors & Awards

2021	Silver Prize , CTE ML Hackathon	Goa, India
2020	100 percentile (overall & Mathematics) , Maharashtra Common Entrance Test	Mumbai, India
2017	Silver Medal , Dr. Homi Bhabha Balvaidnyanik Competition	Mumbai, India

Committees

2022	Member , Society for Artificial Intelligence and Deep Learning	<i>Goa, India</i>
2021	Core Member , Electronics and Robotics Club	<i>Goa, India</i>
2021	Core Member, Life Detection , Project Kratos	<i>Goa, India</i>