

Jitesh Jain

UNDERGRAD RESEARCHER | THIRD YEAR UNDERGRADUATE | COMPUTER SCIENCE

✉ jitesh_j@cs.iitr.ac.in | 🏠 praclarumjj3.github.io | 📧 praclarumjj3 | 📠 jitesh-jain-1451b9192/ | 🐦 @praclarumjj

"All progress takes place outside the comfort zone."

Summary

An undergrad researcher, diving deep into the world of Artificial Intelligence, trying to find solutions to the unanswered problems in the field of AI to help humanity. Familiar with concepts in deep learning, linear algebra, probability and statistics, and computer science fundamentals.

Education

Indian Institute of Technology, Roorkee

Roorkee, India

B.TECH. IN COMPUTER SCIENCE AND ENGINEERING

2019 - Exp. 2023

- CGPA: 9.067/10

Central Academy, Kota

Kota, India

GRADE 12 (SENIOR SECONDARY LEVEL)

2019

- Percentage: 96.60%

Modern Senior Secondary School, Kota

Kota, India

GRADE 10 (SECONDARY LEVEL)

2017

- CGPA: 10/10

Experience

Picsart

Remote

RESEARCH INTERN

June, 2021 - Present

- Working with the **Picsart AI Research** team at *Picsart*.
- Working on developing a Unified Image Segmentation Framework.
- Published a novel work proposing to add semantic context inside vision transformer-based encoders of any existing semantic segmentation framework to obtain considerable improvement in performance.

SHI Lab, University of Oregon

Remote

VISITING STUDENT RESEARCHER

November, 2020 - Present

- Working with **Prof. Humphrey Shi**.
- Working on developing an Image Inpainting Framework.

FilterPixel

Remote

ML ENGINEER INTERN

July, 2020 - September, 2020

- Worked on developing ML models for automating the process of Photo Culling. [\[Link\]](#)
- Developed ML models for classifying images based on their exposure, blurriness, etc.
- [\[Letter of Recommendation\]](#)

Publications

SeMask: Semantically Masked Transformers for Semantic Segmentation

December, 2021

JITESH JAIN | ANUKRITI SINGH | NIKITA ORLOV | ZILONG HUANG | JIACHEN LI | STEVEN WALTON | HUMPHREY SHI

Picsart AI Research

- **First** work to study the effect of adding semantic context to pretrained transformer backbones for the semantic segmentation task.
- Proposed the SeMask block which can be plugged into any existing hierarchical vision transformer encoder to model the semantic context in the network that shows considerable improvements on various benchmark datasets.
- [\[PrePrint\]](#) [\[GitHub\]](#)

DEAP Cache: Deep Eviction Admission and Prefetching for Cache

September, 2020

AYUSH MANGAL* | **JITESH JAIN*** | KEERAT KAUR GULIANI* | OMKAR BHALERAO*

Vision and Language Group, IIT Roorkee

- Submission at AAAI 2021 Student Abstract Track.
- **First** time an approach has tried learning all the three policies: Admission, Prefetching and Eviction.
- Unlike, previous methods which relied on past statistics for carrying out cache replacement, we predict future statistics (frequency and recency) and then use an online RL-algorithm for eviction.
- [\[PrePrint\]](#) [\[GitHub\]](#)

Projects

AOT-GAN-Experiments

[Remote](#)

SHI LAB, UNIVERSITY OF OREGON

May 2021

- AOT-GAN was proposed in the paper: *Aggregated Contextual Transformations for High-Resolution Image Inpainting*.
- Conducted various experiments to evaluate GAN Loss' efficiency during AOT-GAN's training on the Places2 Dataset for Image Inpainting using the Pytorch Framework. [\[GitHub\]](#)

BackBone Profile

[Remote](#)

SHI LAB, UNIVERSITY OF OREGON

December 2020

- Most of the Segmentation works use networks pretrained on Imagenet as bacbones for feature extraction.
- Conducted Experiments on various networks like ResNet 18/34/50/101, MobileNetv2, Xception Net used in Segmentation works as backbones to evaluate their inference time performance metrics. [\[GitHub\]](#)

ChatBot with Pytorch

[IIT Roorkee](#)

SELF-LEARNING PROJECT | VISION AND LANGUAGE GROUP

June 2020

- Chatbots are based on the sequence-to-sequence modeling task.
- Implemented a chatbot using pytorch on the Cornell Movie-Dialogs Corpus dataset using GRUs with an Attention mechanism. [\[GitHub\]](#)

VQ-VAE Implementation in Pytorch

[IIT Roorkee](#)

SELF-LEARNING PROJECT | VISION AND LANGUAGE GROUP

May 2020

- Implemented **VQ-VAE** from scratch in Pytorch on the MNIST dataset as a self-learning project.
- Derived conclusions based on the training and testing results regarding the encoding of images into a latent space, adding Vector-Quantization to encodings and generating images. [\[GitHub\]](#)

Honours & Achievements

- 2019 **All India Rank - 252**, Joint Entrance Exam (JEE) Advanced is attempted by more than 230,000 students[\[Link\]](#)
- 2019 **All India Rank - 454**, Joint Entrance Exam (JEE) Main is attempted by more than 1,000,000 students.
- 2018 **KVPY Fellowship Holder**, KVPY is a highly prestigious National Fellowship awarded by Indian Institute of Science and Government of INDIA to students who show high aptitude in research. [\[Link\]](#)
- 2017 **NTSE Scholarship Awardee**, NTSE is a national level examination for secondary school level to identify and recognize students with high intellect and skills. [\[Link\]](#)

Skills

Programming Languages	Python, Java, Dart, Swift, C, HTML, CSS, JavaScript
Packages and Environments	Pytorch, TensorFlow, Keras, Android Studio, Flutter, Numpy, Pandas, Matplotlib, Lucent, Sckit-learn, Opencv, Django
Utilities	Git, Linux Shell, Vim
Relevant Courses (online)	Deep Learning Specialization (Coursera), GAN Specialization (Coursera) by DeepLearning.ai CS231n (Computer Vision Course) by Stanford University, CS229 (Machine Learning Course) by Stanford University Stat 110 (Probability and Statistics) by Harvard University,
Relevant Courses (offline)	Mathematics-I (Linear Algebra and Calculus), Optimisation Techniques Discrete Structures, Data Structures and Algorithms, Operating Systems

Extracurricular Activity

Vision and Language Group, IIT Roorkee

[Roorkee, India](#)

CORE MEMBER

January, 2020 - Present

- Core member of VLG IITR, a student group that promotes **Deep Learning research culture** at IITR by discussing relevant research papers, organizing workshops and working on related projects.[\[Link\]](#)
- Conducted a workshop on **Generative Modelling using GANs** in March 2021. [\[Colab Notebook\]](#)

Mobile and Development Group

[Roorkee, India](#)

PROJECT MANAGER

January, 2020 - Present

- Project Manager at the Mobile Development group based in IIT Roorkee.[\[Link\]](#)
- Involved in developing and managing mobile applications in Flutter.

Geek Gazette, IIT Roorkee

[Roorkee, India](#)

GRAPHIC DESIGNER

August, 2019 - Present

- Official Tech Magazine based in IIT Roorkee.[\[Link\]](#)
- Involved in designing graphics for articles and other design related decisions.