

# Jitesh Jain

PH.D. STUDENT | COMPUTER SCIENCE | GEORGIA TECH

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## Education

### Georgia Tech

PH.D. STUDENT IN COMPUTER SCIENCE, SCHOOL OF INTERACTIVE COMPUTING

- Advisor: Prof. Humphrey Shi

Atlanta (GA)

Since Fall 2023

### Indian Institute of Technology Roorkee

B.TECH. IN COMPUTER SCIENCE AND ENGINEERING

- CGPA: 9.0/10

Roorkee, India

2019 - 2023

### Central Academy, Kota

GRADE 12 (SENIOR SECONDARY LEVEL)

- Percentage: 96.6%

Kota, India

2019

## Experience

### SHI Labs @ UIUC & U of Oregon

RESEARCH INTERN

- Worked with Prof. Humphrey Shi.
- Released a work proposing a multi-task universal image segmentation framework (OneFormer) that outperforms existing specialized models on all three image (panoptic, semantic, and instance) segmentation tasks.
- Published a work proposing an inpainting framework (FcF-Inpainting) using *Fast Fourier Convolutions* which works equally well on structure and texture images and is competitive with the state-of-the-art methods.

Eugene (OR)

November 2020 - June 2023

### Picsart AI Research

RESEARCH INTERN

- Worked as a part of the then newly founded Picsart AI Research Team and released the first ever open-source project by Picsart.
- Released a work (SeMask) proposing to add semantic context inside vision transformer-based encoders of any existing semantic segmentation framework to obtain considerable performance improvement.
- Worked partly on OneFormer during my internship.

Remote

June 2021 - September 2022

### FilterPixel

ML ENGINEER INTERN

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

Remote

July 2020 - September 2020

## Publications

### OneFormer: One Transformer to Rule Universal Image Segmentation

JITESH JAIN, JIACHEN LI\*, MANGTIK CHIU\*, ALI HASSANI, NIKITA ORLOV, HUMPHREY SHI

- [PrePrint] [GitHub] [Project Page]

CVPR 2023

SHI Labs @ UIUC & UO

### Matting Anything

JIACHEN LI, JITESH JAIN, HUMPHREY SHI

- [PrePrint] [GitHub] [Project Page]

arXiv 2023

SHI Labs @ UIUC & UO

### Keys to Better Image Inpainting: Structure and Texture Go Hand in Hand

JITESH JAIN\*, YUQIAN ZHOU\*, NING YU, HUMPHREY SHI

- [PrePrint] [GitHub] [Project Page]

WACV 2023

SHI Labs @ UIUC & UO

### SeMask: Semantically Masked Transformers for Semantic Segmentation

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

- [PrePrint] [GitHub]

NIVT Workshop @ICCV 2023

Picsart AI Research (PAIR)

## Projects

### Neural Style Transfer: A Technical Report

IIT Roorkee

CSN-526 COURSE PROJECT

January 2022 - April 2022

- Worked on studying the effects of various factors like feature extractors, optimizers, loss functions, etc. techniques on the NST task.
- We also proposed the use of pseudo-ground truths for evaluating the performance under different settings. [GitHub]

### BackBone Profile

Remote

SHI LAB @ UIUC & UO

December 2020

- Most of the Segmentation works use networks pretrained on Imagenet as backbones for feature extraction.
- Analyzed backbones like ResNet 18/34/50/101, MobileNetV2, etc. to evaluate their inference time performance metrics. [GitHub]

### Other Significant Projects

SOME OTHER SIGNIFICANT PROJECTS ARE AS FOLLOWS:

- **VQ-VAE Implementation in Pytorch:** Implemented VQ-VAE from scratch in Pytorch on the MNIST dataset as a self-learning project. [GitHub]
- **ChatBot with Pytorch:** Implemented a chatbot in PyTorch using GRUs with an Attention mechanism. [GitHub]

## Honours & Achievements

- 2022 **Bronze Medalist**, Awarded the Bronze Medal under Bosch's Age and Gender Detection Track at Inter IIT Tech Meet 10.0. The competition is held every year among all the IITs. [Certificate]
- 2019 **All India Rank - 252**, Joint Entrance Exam (JEE) Advanced is attempted by more than 230,000 students across India for admission into the IITs. [Certificate]
- 2019 **All India Rank - 454**, Joint Entrance Exam (JEE) Main is attempted by more than 1,000,000 students across India to gain eligibility for attempting JEE Advanced. [Certificate]
- 2018 **KVPY Fellowship Holder**, KVPY is a highly prestigious National Fellowship awarded by the Indian Institute of Science to students showing high aptitude in research. [Certificate]
- 2017 **NTSE Scholarship Awardee**, NTSE is a national level examination for the secondary school level to identify and recognize students with high intellect and skills. [Certificate]

## Extracurricular Activity

### Vision and Language Group, IIT Roorkee

Roorkee, India

CO-PRESIDENT

January 2020 - May 2023

- Co-President of VLG IITR, a student group that promotes *Deep Learning research culture* at IITR by discussing relevant research papers, organizing workshops and working on projects. [Website]

### MDG Space, IIT Roorkee

Roorkee, India

PROJECT MANAGER

January 2020 - May 2023

- Project Manager at MDG Space in IIT Roorkee, involved in developing and managing mobile applications in Flutter. [Website]

### Student Mentorship Program, IIT Roorkee

Roorkee, India

STUDENT MENTOR

October 2021 - May 2022

- Mentored freshers at IITR for their smooth transition to campus life, motivating their academic and co-curricular endeavors. [Certificate]

## References

### Prof. Humphrey Shi

United States

ASSOCIATE PROFESSOR @GEORGIA TECH | CHIEF SCIENTIST @PICSART

- Email: shi@gatech.edu

### Dr. Yuqian Zhou

United States

RESEARCH SCIENTIST @ADOBE RESEARCH

- Email: yuqzhou@adobe.com

### Dr. Ning Yu

United States

RESEARCH SCIENTIST @SALESFORCE RESEARCH

- Email: ning.yu@salesforce.com

### Dr. Nikita Orlov

Russia

TEAM LEADER @PICSART

- Email: nikita.orlov@picsart.com