Jitesh **Jain**

PH.D. STUDENT | COMPUTER SCIENCE | GEORGIA TECH

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Education

Georgia Tech   *Atlanta (GA)*

PH.D. IN COMPUTER SCIENCE, SCHOOL OF INTERACTIVE COMPUTING   *Starting Spring 2024*

- Advisor: Prof. Humphrey Shi

Indian Institute of Technology Roorkee   *Roorkee, India*

B.TECH. IN COMPUTER SCIENCE AND ENGINEERING   *2019 - 2023*

- CGPA: 9.0/10

Central Academy, Kota   *Kota, India*

GRADE 12 (SENIOR SECONDARY LEVEL)   *2019*

- Percentage: 96.6%

Experience

SHI Labs @ UIUC & U of Oregon   *Eugene (OR)*

RESEARCH INTERN   *November 2020 - June 2023*

- 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.

Picsart AI Research   *Remote*

RESEARCH INTERN   *June 2021 - September 2022*

- 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.

FilterPixel   *Remote*

ML ENGINEER INTERN   *July 2020 - September 2020*

- 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]**

Publications

OneFormer: One Transformer to Rule Universal Image Segmentation   *CVPR 2023*

JITESH JAIN, JIACHEN LI*, MANGTIK CHIU*, ALI HASSANI, NIKITA ORLOV, HUMPHREY SHI   *SHI Labs @ UIUC & UO*

- **[PrePrint] [GitHub] [Project Page]**

Matting Anything   *arXiv 2023*

JIACHEN LI, JITESH JAIN, HUMPHREY SHI   *SHI Labs @ UIUC & UO*

- **[PrePrint] [GitHub] [Project Page]**

Keys to Better Image Inpainting: Structure and Texture Go Hand in Hand   *WACV 2023*

JITESH JAIN*, YUQIAN ZHOU*, NING YU, HUMPHREY SHI   *SHI Labs @ UIUC & UO*

- **[PrePrint] [GitHub] [Project Page]**

SeMask: Semantically Masked Transformers for Semantic Segmentation   *arXiv 2021*

JITESH JAIN, ANUKRITI SINGH, NIKITA ORLOV, ZILONG HUANG, JIACHEN LI, STEVEN WALTON, HUMPHREY SHI   *Picsart AI Research (PAIR)*

- **[PrePrint] [GitHub]**

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

ADJUNCT ASSISTANT PROFESSOR @UIUC | ASSISTANT PROFESSOR @U OF OREGON | CHIEF SCIENTIST @PICSART

- **Email**: hshi10@illinois.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