

EDUCATION

Vellore Institute of Technology	Vellore, India	Jul 2018 – May 2022 (Expected)
<ul style="list-style-type: none">• Bachelor of Technology in Computer Science and Engineering• Undergraduate Coursework: Design and Analysis of Algorithms, Operating Systems, Object-Oriented Design and Development, Database Management Concepts and Systems, Software Engineering, Internet Protocols, High Performance Computing.		
PACE Junior Science College	Mumbai, India	Aug 2016 – May 2018
<ul style="list-style-type: none">• Senior Secondary Certificate		

PROFESSIONAL EXPERIENCE

Visiting Student Researcher	NASA Jet Propulsion Laboratory, USA	Sep 2021 – Nov 2021
Guide: Dr. Glenn Orton, Planetary and Exoplanetary Atmospheres <ul style="list-style-type: none">• Analyzing images by the JunoCam aboard the Juno spacecraft, currently orbiting Jupiter.• Analyzing wind patterns on Jupiter's high northern latitudes near the polar region.• Using time-series methods to determine region and degree of the wind-flow.		
Mitacs Globalink Research Intern	ÉTS Montréal, Canada	May 2021 – Jul 2021
Guide: Prof. Eric Granger, ÉTS-LIVIA Laboratory <ul style="list-style-type: none">• Working towards recognition of real world objects in complex, unconstrained environments through video surveillance footage.• This research would be supported by a scholarship from Mitacs and the All India Council for Technical Education (AICTE).		
Research Fellow	Princeton University, USA	Mar 2021 – Aug 2021
Guide: Dr. Savannah Thais, IRIS-HEP Software Institute <ul style="list-style-type: none">• Working on incorporating machine learning methods to help solve High Energy Physics problems.• Currently in the process of adapting Graph Neural Networks to map trajectories of emitted particles in the Conformal space.		
Research Intern	La Rochelle Université, France	Dec 2020 – Apr 2021
Guide: Prof. Mickaël Coustaty, Prof. Jean-Loup Guillaume, L3i Laboratoire <ul style="list-style-type: none">• Currently in the process of developing and improving panoptic segmentation methods using community detection techniques.• Engaged in this assignment remotely due to the COVID 19 pandemic.		
Research Intern	La Rochelle Université, France	Jun 2020 – Nov 2020
Guide: Prof. Mickaël Coustaty, L3i Laboratoire <ul style="list-style-type: none">• Work submitted and currently under review at International Conference on Document Analysis and Recognition (ICDAR) 2021.• Developed an intelligent character recognition system for non-Latin languages that works with constrained datasets, constructing novel methods for few-shot learning.• Engaged in this assignment remotely due to the COVID 19 pandemic.		
Computer Vision Intern	CamCann Smart Systems, India	Jan 2020 - Jun 2020
Guide: Mr. David Velho <ul style="list-style-type: none">• Provided development and testing support to create end-to-end vision based solutions having applications in retail-tech.• Contributed to the development of a video analytics software subsystem to gain insights on shopping patterns, customer interests and duration-of-interest.• Facilitated communication as a release coordinator to ensure effective and timely delivery of changes.		
Machine Learning Associate	Ignitus LMS Inc.	May 2019 - Jun 2020
<ul style="list-style-type: none">• Helped develop and curate machine learning content for the upcoming MOOC by Ignitus.• Contributed to the development and creation of interactive software subsystems and Jupyter notebooks for machine learning tutorials.		
Research Intern	Indian Institute of Technology Indore, India	May 2019 - Jun 2019

Guide: Prof. Surya Prakash, Pattern Analysis and Machine Intelligence Laboratory

- Developed solutions for visual odometry problems in unconstrained environments.
- Applied image processing and optical flow solutions like Kalman Filtering and EKF for accurate probabilistic tracking approach.

RESEARCH PAPERS AND PUBLICATIONS

In Preparation

Rajat Sahay and Lydia Jane, "Cleaning Large Scale Image Datasets using Community Detection Methods."

Communicated

Rajat Sahay, "Adversarial Attacks on Images via Selective Coloring."

In Preparation

Rajat Sahay and Mickaël Coustaty, "Few Shot Learning for Handwritten Urdu Text Recognition."

MISCELLANEOUS TECHNICAL EXPERIENCE

Freelance Technical Content Writer

Oct 2019 - Present

- Writing on research endeavours and ongoing developments in the fields of computer vision and conventional machine learning techniques.
- Published articles in various reputed publications like *Towards Data Science*, *Heartbeat (by Fritz AI)* and *GeeksforGeeks*.

Open Source Contributor

Ludwig AI - Uber ATG

Aug 2020 - Present

- Worked on improving performance of Ludwig AI by Uber ATG labs. Ludwig is a toolbox built on top of Tensorflow to allow easy training and testing of models.
- Currently working on adding new image encoders and support Ludwig functionalities.

LANGUAGES AND TECHNOLOGIES

- C, C++, Python, HTML, CSS, JavaScript, \LaTeX
- Tensorflow, Keras, PyTorch, OpenCV, OpenVINO, Git, Bash

ACADEMIC PROJECTS

Estimating Visual Odometry in Constrained Environments

Guide: Prof. Surya Prakash, Pattern Analysis and Machine Intelligence Laboratory

- Worked on estimating cell motility and tracking the path of cells engaged in Brownian motion in constrained environments.

Implementing a Panoptic Segmentation Pipeline using Community Detection Methods

Guide: Prof. Mickaël Coustaty, Prof. Jean-Loup Guillaume, L3i Laboratoire

- Working on segmenting images using the Louvain algorithm on extracted superpixel nodes.