Vellore Institute of Technology
Vellore, TN 400705
rajatsahay.ml

RAJAT SAHAY

(+91) 77159-92081
rajat.sahay2018@vitstudent.ac.in

EDUCATION

Vellore Institute of Technology **Vellore, India** **Jul 2018 – May 2022 (Expected)**

- **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**

- Senior Secondary Certificate

PROFESSIONAL EXPERIENCE

Research Intern **La Rochelle Université, France** **Dec 2020 – May 2021**

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

- 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

- 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

- 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**

- 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

Communicated

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

Under Review

Rajat Sahay and Mickaël Coustaty, "Few Shot Learning for Handwritten Urdu Text Recognition." International Conference on Document Analysis and Recognition (ICDAR) 2021

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
- Tensoflow, Keras, PyTorch, OpenCV, OpenVINO, Git, Bash

Projects

Episode Transcript Generator

- Constructed a char-based GRU network to generate entirely new transcripts of episodes.
- Self-collated the dataset, conducted data pre-processing and post-processing experiments for best possible results. Also worked on hyperparameter tuning for the GRU.

Pose-to-Pose Translation

- Re-implemented the paper *Everybody Dance Now* using pix2pixHD.
- Used Real Time Multi Pose Estimation models and combined them with pix2pix to create a transferable approach for mapping poses across different people.

Embedding Faces into StyleGAN Latent Space

- Coded a novel encoder-decoder architecture that processes facial encodings and embeds them as vectors into the latent space of StyleGAN.
- Added support for FaceNet (128-dimensional) as well as VGG-Face (4096-dimensional) facial embeddings.