Vellore Institute of Technology
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# RAJAT SAHAY

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## EDUCATION

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

- **Bachelor of Technology in Computer Science and Engineering**
- **Graduate 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** — **June 2020 – Present**

- Currently working (remotely) at the L3i Laboratoire under the guidance of Prof. Mickaël Coustaty.
- Currently working on an intelligent character recognition system for non-Latin languages that works with constrained datasets, developing novel methods for few-shot learning.
- Internship shifted to remote due to the COVID 19 pandemic.

**Computer Vision Intern** — **CamCann Smart Systems, India** — **Jan 2020 - Jun 2020**

- 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 etc.
- 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** — **Jan 2020 - Jun 2020**

- Worked in the Pattern Analysis and Machine Intelligence Laboratory under the guidance of Prof. Surya Prakash.
- Worked on developing solutions for visual odometry in unconstrained environments.
- Facilitated communication as a release coordinator to ensure effective and timely delivery of changes

## RESEARCH PAPERS AND PUBLICATIONS

**Adversarial Attacks on Images via Selective Colouring**
Rajat Sahay
*Communicated*

**Applying Few Shot Learning for Urdu Character Recognition**
Rajat Sahay, Mickaël Coustaty
*In Progress*

## 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** — **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.

## Achievements

- **Google Assistant Developer Community**: Created workable applications for Google Assistant.
- **Amazon Alexa Developer Platform**: Created workable voice applications for Amazon Alexa.