

# Aayush Kumar Tyagi

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GitHub: [github.com/Aayushktyagi](https://github.com/Aayushktyagi)

## EDUCATION

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### Indraprastha Institute of Information Technology

New Delhi, India

M.Tech. in Communication and signal processing Name, GPA: 7.78/10

2016–2018

- Research: “Disentangling pitch information from speech”
- Advisor: Dr. Saket Anand

### Vidyalankar Institute of Technology

Mumbai, India

B.E. in Electronics Engineering, GPA: 74/100

2011–2015

- Thesis: “Two factor Authentication for door locking system ”
- Advisor: Sheetal Patil

## EXPERIENCE

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### Indian Institute of Technology Delhi

New Delhi, India

Research Assistant

Oct, 2019 –Present

- Unsupervised Skin segmentation for NIR images
- Paper: “Unsupervised Domain Adaptation for Semantic Segmentation of NIR Images through Generative Latent Search” Accepted at **ECCV2020** (spotlight)

### Innefu Labs

New Delhi, India

Data Scientist

Aug, 2018 –Sept, 2019

- Video Analytic and surveillance
- We worked on building a video analytic product for law enforcement agencies to detect malicious activities like entry in restricted area, people counting, overcrowding, weapon detection and Facial recognition.

## PUBLICATIONS

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- [1] P. Pandey, A. Kumar, and A. Prathosh, “Unsupervised domain adaptation for semantic segmentation of nir images through generative latent search (pre-print **ECCV2020** [**Spotlight**])”,

## SKILLS

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- **Programming Languages:** Python, Matlab
- **Library:** Tensorflow, Pytorch, Sklearn, Numpy, OpenCV
- **Expertise Area:** Deep learning and Computer Vision

## COURSES

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- Machine Learning
- Computer Vision
- Deep Learning
- Statistical Signal processing

## REFERENCE

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- A.P.Prathosh Email: [prathoshap@iiitd.ac.in](mailto:prathoshap@iiitd.ac.in)
- Shivashankar Nagaraj Email: [shiv.nagaraj@qut.edu.au](mailto:shiv.nagaraj@qut.edu.au)

## PROJECTS

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See full list of projects on [github.com/Aayushktyagi](https://github.com/Aayushktyagi)

### **Skin Segmentation from NIR images**

Oct, 19 –Mar, 20

Guide: Dr. A.P.Prathosh

- We developed an algorithm to solve skin segmentation problem on NIR images. We cast skin segmentation problem of target independent unsupervised domain adaptation where we use the data from Red channel of visible range to develop skin segmentation algorithm on NIR images. The paper recently got accepted by **ECCV2020** as spotlight paper.

### **Cancer of unknown primary**

Oct, 19 – present

Guide: Dr. Shivashankar Nagaraj , Dr. A.P.Prathosh

- We develop a cancer classifier to classify 39 types of cancers from their gene expression. We are working on model interpretability to analyze the genes which contribute to improve classification score(Inprogress).

### **Retail Analytics**

Jan, 19 –Sept, 19

Innefu labs

- We worked on giving insight about customer's hot zones/ most visited parts in store. For this purpose we created person detection model for high angle cameras and Person re-identification. In addition to this we trained a classifier to differentiate between customer and employee to get the exact number of customers visiting store.

### **Face recognition and Video analytics**

Aug, 18 –Dec, 18

Innefu labs

- We worked on building a video analytic product for law enforcement agencies to detect malicious activities like entry in restricted area, people counting, overcrowding, weapon detection and Facial recognition

### **Personalized Speech synthesis system**

Aug, 17 –Mar, 18

Guide: Dr. Saket Anand

- We worked on disentangling the pitch component from the latent space using variational autoencoder and adversarial training. We tried to extract pitch component in order to perform voice transformation from male to female and vice versa.

### **Speech synthesis and Mimicking system**

Aug, 17 –Nov, 17

Guide: Dr. Saket Anand

- We created voice mimicking system that can transform source speaker speech into target speaker while preserving linguistic content. We explored time series models GMM, LSTM, Bidirectional LSTM and GRU for same.

## SCHOLARSHIPS AND AWARDS

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|---|-----------|
| • AICTE Post graduate scholarship for Masters education                           | 2016–2018 |
| • AFWWA scholarship for college student awarded based on merit basis for the year | 2012–2013 |
| • Ranked 7th in state, 63th in India in National biotechnology Olympiad, India    | 2012      |
| • Ranked 3rd in state, 27th in India in National biotechnology Olympiad, India    | 2010      |

## HOBBIES

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- Playing Cricket
- Reading Novels( mostly anime)
- Music