

## Tarun Tiwari

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## EDUCATION

### Visvesvaraya Technological University

Bachelor of Technology in Computer Science

MVJ College of Engineering

CGPA: 8.08/10

Bengaluru, India

Aug'17-Jul'21

## EXPERIENCE

### Micro Focus

Software Development Engineer-1

- Collaborated with research and development team and working on Identity Access and Management System.
- Assigned multiple tasks related to development of new features in Identity Management and solving bugs in existing code base.

Bengaluru, India

Aug'21-Ongoing

### Crewasis

Data Science Intern

Brooklyn, United States

Mar'21 – Jul'21

- Worked on a project related to improving overall sales and expand the brand of a billion dollar protein powder brand in USA.
- Handled the entire project along with other interns starting from discovery calls till the end until delivering the final insights along with an in-depth case study by direct interaction along with the data science team of the protein powder manufacturing brand.
- Aimed to provide the insights related to demographics of customers through using KNN, Google trends and Tableau.

### Ministry of Defence, Govt. of India

Research Intern under Group Director Dr. P Suresh Kumar

Bengaluru, India

Sept'20 – Mar'21

- Worked on a project related to autonomous system for military aircrafts.
- Read multiple research papers to understand the working of image retrieval and proposed implementation of Content based Image Retrieval for retrieval of reticles.
- Implemented cockpit display symbology retrieval algorithm using morphological operations to extract features from head up display of the aircraft.

### Pianalytix

Machine Learning Research Intern

Hyderabad, India

Dec'20 – Jan'21

- Worked on implementation of a recommender system for auto selection of web development courses from the website.
- Implemented Appriori algorithm for development and deployment of recommender model.

### London Strategy and Consulting Group

Software Developer Intern

London, United Kingdom

Aug'20 – Nov'20

- Applied various classification algorithms like decision-tree, random forest, SVM and XGBoost classifier for detecting fraud cases related to money laundering from transaction history in banks
- Developed a webpage interface using Javascript for better client's experience and displaying possible fraud cases.
- Integrated an email notification system using python for a real time update and notification.

## SKILLS

- **Languages:** Python, Cpp, C, Javascript, TypeScript, Java
- **Databases:** MySQL, MongoDB
- **Cloud Environment:** Google Colab, AWS
- **Frameworks & Tools:** Tkinter, TensorFlow, Keras, Scikit-learn, OpenCV, Numpy, Pandas, Tableau, Git
- **Web Technologies:** HTML, CSS, Bootstrap, Angular
- **Others:** UI/UX Design, Geocoding

## ACADEMIC PROJECT

### Home Quarantine System using Computer Vision

May'20 – Jul'20

- Developed an economical quarantine system for COVID patients under home isolation using computer vision.
- Implemented MobileNetSSD for possible detection of humans and implemented centroid detection and Euclidean distance algorithms to detect possible cases of social distancing breach followed by a warning siren.
- Wirelessly mobile connected to PC was used as a surveillance camera.

### Sapling Health Monitoring System

Feb'19 – Oct'19

- Developed a system for examining shortcomings from agricultural crops in early stages, to avoid crop loss.
- Built a semi-automated rover using Raspberry Pi equipped with Pi-camera module and connected to local system, capable of capturing plant leaf's image and transfer to local system in real time.
- Implemented ResNet-152 on a public dataset of 54306 images to detect diseases in crops from sample images, achieved an accuracy of 93.06%.

### Smart security camera based on Raspberry Pi

Dec'18 -Jan'19

- Developed a security system for detecting moving object from video stream using image processing and computer vision followed by a real-time email notification system and buzzer.
- Implemented the system on raspberry pi using pi camera as primary camera module.

## Website Blocker

Dec '19

- Designed a system for blocking the access of a list of websites on PC, provided by the user for a period of time assigned by user.
- Used technologies like Tkinter python library for building a Graphical User Interface for a better usability.

## Path Finder

Jul '18 – Nov '18

- Implemented a system to provide minimum distance between 2 locations by implementing reverse geocoding and geocoding using Google API.
- Developed a user-friendly interface for the system using HTML, CSS and flask library in python.

## PUBLICATIONS AND PRESENTATIONS

### Title: Visual Perception Stack for Autonomous Vehicle Using Semantic Segmentation and Object Detection

Paper selected for IEEE Madras Section International Conference 202, as a part of in IEEE Xplore Digital library

Authors: Dr. Manju Khanna, **Tarun Tiwari**, Satyam Agarwal, Aakarsh Etar

Link: <https://ieeexplore.ieee.org/document/9563527>

### Title: Controller Design for Autonomous Vehicle

Paper selected for 2021 International Conference on Advances in Electrical, Computing, Communication and Sustainable Technologies as a part of IEEE Xplore Digital library

Authors: **Tarun Tiwari**, Satyam Agarwal, Aakarsh Etar

Link: <https://ieeexplore.ieee.org/document/9392498>

### Title: Deep Learning Based Lateral Control System

Paper selected for 2020 IEEE International Symposium on Sustainable Energy, Signal Processing and Cyber Security as a part of IEEE Xplore Digital library

Authors: **Tarun Tiwari**, Nishanth Shastry, Aparajita Nandi

Link: <https://ieeexplore.ieee.org/document/9358854>

### Title: Sapling Health Monitoring System

Paper selected for International Conference on Advanced Computing Technologies and Application 2020 as a part of Springer Link digital Library

Authors: Shubham Mishra, Nishanth Shastry, **Tarun Tiwari**

Link: [https://link.springer.com/chapter/10.1007%2F978-981-15-3242-9\\_21](https://link.springer.com/chapter/10.1007%2F978-981-15-3242-9_21)

### Title: Computer Vision Based Pre-Processing System for Autonomous Vehicle

Paper selected for 2020 International Conference on Computational Intelligence, Data Science and Cloud Computing as a part of AJAC Special Issue Vol.1 2021

Authors: **Tarun Tiwari**, Aparajita Nandi

Link: [https://ajac.smartsociety.org/wp-content/uploads/2021/01/AJAC-Special-Issue\\_Jan21\\_Vol-1\\_Issue-1.pdf](https://ajac.smartsociety.org/wp-content/uploads/2021/01/AJAC-Special-Issue_Jan21_Vol-1_Issue-1.pdf)

### Title: IoT Based Smart Security System

Paper selected for 2nd International Conference on Innovations in Computing, Automation and Intelligent Information Systems as a part of IJAMTES Special Issue 2019

Authors: **Tarun Tiwari**, Nishanth Shastry

Link: <https://ijamtes.org/VOL-9-ISSUE-06-2019-1/>

## PATENT

### Title: Home Quarantine System

Patent Pending

Application no.202141042288, Provisional Patent granted in September 2021

Inventor: **Tarun Tiwari**

## EXTRACURRICULAR ACTIVITIES

- Research Paper Reviewer**, IEEE Madras Section (Aug '21 - Sep '21)
- Member**, IIC Student Council Core Team, MVJ College of Engineering (Jan '21 - Jul '21)
- Coordinator**, Software Development Club, MVJ College of Engineering (Jul '19 - Jun '20)
- Organizer**, NIC Club, MVJ College of Engineering (Sep '19 - Mar '20)

## AWARDS AND SCHOLARSHIPS

**Prime Minister Scholarship** to cover 25% of college tuition fees for 4 years of B.Tech (2017-2021)

**Best Paper Award for Computer Science Track**, IEEE MASCON 2021 (Aug 2021)

**Runner Up**, AIC-JTF State Level Hackathon, Bengaluru (Nov 2019)

**Runner Up**, Innovation Day, MVJCE, Bengaluru (Jul 2019)

**Second Runner Up**, IoT Tech Competition, VerTechX Technical Fest, Bengaluru (Mar 2019)

**Semi finalist from southern India region**, IIHM International Young Chef, Bengaluru (Aug 2016)