ABHISHEK TANDON

Contact: **(+91) 9672372441** | **Email:** abhishektnd@gmail.com | **Github:** Tandon-A | **LinkedIn:** tandon--abhishek

Education

BE Hons. in Mechanical Engineering, Birla Institute of Technology and Science, Pilani, Pilani Campus
CGPA: **8.55/10.0** **2014 -2018**

All India Senior Secondary Certificate Examination (Class XII) – CBSE, Amity International School, Mayur Vihar, Delhi
Percentage: **94.6%** **2013 - 2014**

All India Senior Secondary Certificate Examination (Class X) – CBSE, Amity International School, Mayur Vihar, Delhi
CGPA: **10.0/10.0** **2011 - 2012**

Professional Experience

Computer Vision Center | UAB, Spain | *Visiting Researcher* **Oct 2019 – Present**

- Working in the Advanced Driver Assistance Systems lab at Computer Vision Center under the supervision of Dr Antonio Lopez. My area of research is 3D object detection and domain adaptation.
- Improving 3D object detection for self-driving cars by using synthetic datasets by adapting them to the real domain.

Oracle | India Development Center | *Applications Engineer* **July 2018 – Sep 2019**

- Integrated Oracle sales platform with Slack using Oracle Service Bus improving the user experience. Developed a usage tracking tool using Oracle JET. The usage statistics helped in getting other teams to switch to Slack apps.
- Wrote error handling flows to maintain effective communication between apps using Service Oriented Architecture.

Intel Technologies | Bangalore, India | *Machine Learning Intern* **July 2017 – Dec 2017**

- **Project Intelligent Thermals**: Trained machine learning models to distinguish between different orientations of laptop usage achieving 99% accuracy on a self-prepared custom dataset for the task.
  Deployed model on C# application to optimize the CPU performance in the different modes. The application was integrated into OEM devices for further testing.
- **Project Haptics in Gaming:** Developed a real-time material recognition pipeline using Caffe C++ to provide haptic support in games for another project. Used a CNN based semantic segmentation model for the task.

Ethnus Consultancy Services | Bangalore, India | *Data Analyst Intern* **May 2016 – July 2016**

- Analyzed data regarding campus placements and course structures of premier colleges (PAN India) to predict new trends to help form business strategies.

Projects

Cycle GAN SSIM

[Code] [Project Blog] **April 2018 – Oct 2018**

- Implemented Cycle Consistent GAN to adapt a dataset from one domain to another using TensorFlow.
- Added a similarity based loss, comparing and evaluating different structural similarity (SSIM) based loss functions to improve the quality of generated images.

Quality Control using Deep Learning

Supervised by: *Dr. Srikanta Routroy, BITS Pilani,* [Code] **Jan 2018 – May 2018**

- Developed Convolutional Neural Network based visual inspection pipeline to differentiate defective products from defect free products. Trained model on DAGM database to achieve 99% accuracy over the database.

Image Editing using Generative Adversarial Networks (GAN)

Supervised by: *Dr. Surekha Bhanot, BITS Pilani,* [Code][Project Blog] **Jan 2018 – May 2018**

- Implemented Deep Convolutional GAN using *TensorFlow* on CelebA database to edit facial images to generate images having attributes such as 'bald', 'male' etc.
- Extended project by allowing for season transfer by implementing Cycle Consistent GAN using T*ensorFlow* on summer-winter Yosemite database.

Earthquake Magnitude Prediction

Microsoft ML Competition, BITS Pilani, Pilani **April 2017**

- Trained Random Forest Regressor on USGS Earthquake data to predict earthquake magnitude. Developed model using Microsoft Azure ML Stu**dio** to achieve a mean absolute error of 0.25.

Creepy Follower Bot

APOGEE 2017, Technical Gathering at BITS Pilani, India | Texas Instruments Innovation Challenge **Jan 2017 – March 2017**

- Developed a robot (prototype) to follow the user and assist in carrying extra baggage, as an elderly assist robot. Used Arduino board in conjunction with *HC-SR04* ultrasound sensors to make a map of surroundings and enable the robot to follow the user.

Teaching Experience

Teaching Assistant for Object Oriented Programming Course, BITS Pilani

Supervised by: *Dr. Pankaj Vyas* **Jan 2017 – May 2017**

- Designed and developed Java coding problems and tutorials for lab manual content . Conducted practical lab classes and assisted students in lab assignments.

Academic Honours and Awards

- Recipient of **Facebook Secure and Private AI Udacity scholarship** to pursue Computer Vision Nanodegree program.
- Recipient of **Menezes Technology Scholarship** by *Victor Menezes foundation* for overall academic excellence.
- **Awarded first prize** for the project, '**Creepy Follower Bot',** completed as part of **Texas Instruments Innovation Challenge** conducted at *APOGEE 2017, intercollegiate technical competition of BITS Pilani*.
- **Awarded second prize** for the project, '**Earthquake Magnitude Prediction',** completed as part of **Microsoft Machine Learning Competition** conducted at BITS Pilani.
- Received **letter of appreciation** from former *Human Resource Development Minister of India* for showing excellent performance by securing **100% marks** in **Computer Science Examination in Secondary School Examination**.

Skill Set

Java, Python, C++, PyTorch, TensorFlow, OpenCV, Intel OpenVINO toolkit, Scikit-learn, Weka, SQL

Coursework

Computer Science and Related Courses: Computer Programming | Object Oriented Programming | Operating Systems | Data Structures and Algorithms | Machine Learning | Neural Networks and Fuzzy Logic

Mathematics and Related Courses: Mathematics I (Calculus) | Mathematics II (Linear Algebra and Complex Numbers) | Probability and Statistics | Mathematics III (Differential Equations) | Discrete Mathematics | Engineering Optimization

Certifications

Udacity Computer Vision Nanodegree **Oct 2019 – Dec 2019**

- Learnt about feature extraction techniques using OpenCV, both manual and using CNN filters, YOLO, SSD algorithms, CNNs in conjugation with RNNs and object tracking and localization.
- Developed projects on facial keypoints detection, image captioning and simultaneous localization and mapping (SLAM) and extra-curricular project on code optimization. [Code]

Intel - AI from Data Center to Edge **Sep 2019 – Oct 2019**

- Used Intel's OpenVINO toolkit to optimize deep learning models for deployment.

Udacity Secure and Private AI **Jun 2019 – Aug 2019**

- Learnt about privacy preserving techniques, such as differential privacy and federated learning, to build secure AI applications using PySyft library. [Code] [Differential Privacy Blog Post]
- Contributed to facial recognition ([code]) and NSFW detector ([code]) projects as part of the course.