ABHISHEK TANDON

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Research Interests

Computer Vision, Deep Learning, Robotics

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**

Work Experience

Intel Technologies | Client Computing Group | Bangalore, India

Machine Learning Intern **July 2017 – Dec 2017**

1. **Haptics in Gaming:**
   - Trained **CNN based semantic segmentation model** for material recognition problem. Developed an API for the same using **Caffe on C++.**

2. **Intelligent Thermals using Machine Learning:**
   - Trained **Machine Learning models** to distinguish between lap and desk mode laptop usage achieving **99% accuracy**.
   - Deployed model on **C# application** to control fan speed in the two modes. Application was integrated in OEM devices.

Ethnus Consultancy Services | Bangalore, India

Data Analyst **May 2016 – July 2016**

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

Projects

Image Editing using Generative Adversarial Networks (GAN)

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

- Implemented **Deep Convolutional GAN** as proposed by Radford et. al. in tensorflow on **CelebA database** to edit facial images to generate images having attributes such as 'bald', 'male' etc. Project blog - **https://tandon-a.github.io/Image-Editing-using-GAN/**

SqueezeNet

Course Project, Neural Networks and Fuzzy Logic, BITS Pilani, [Code] **April 2018**

- Implemented SqueezeNet as proposed by Landola et. al. to decrease the size of Deep Learning model without compromising accuracy. Trained SqueezeNet variants on mini-ImageNet database using *tensorflow* library.

Quality Control using Deep Learning

Supervised by: *Dr. Srikanta Routroy, BITS Pilani* **Feb 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.

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 Studio** to achieve a **mean absolute error of 0.25**.

Creepy Follower Bot

APOGEE 2017, Technical Gathering at BITS Pilani, India | Texas Instruments Innovation Challenge **Feb 2017 - April 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.

Clustering with Same Cluster Queries

Course Project, Machine Learning, BITS Pilani **Feb 2017 - April 2017**

- Implemented a **semi supervised active clustering (SSAC) framework** using a query system as proposed here.
- Compared the above algorithm with **constrained k-means** algorithm as proposed by Basu et. al. **in terms of mutual information score.**

Teaching Experience

Teaching Assistant for Object Oriented Programming Course, BITS Pilani

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

- **Designed coding problems** and **examples** illustrating **Java** concepts for lab manuals. Responsible for conducting lab sessions and assisting students in lab assignments.

Academic Honours and Awards

- 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

Languages: C, C#, Java, Python, HTML, Javascript, SQL

Tools: Eclipse IDE, Visual Studio, Jupyter Notebook, Weka, Microsoft Azure ML Studio

Frameworks: Tensorflow, Caffe, scikit-learn

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

Position of Responsibility and Extra Curricular Activities

Core Member, Department of Publications and Correspondence **Aug 2016 – Aug 2017**

- Mentored a two-tier team of 25 to publicize events and communicate with 5000+ colleges and 4000+ students while organizing **BOSM 2016 –** All India Sports Gathering and **OASIS 2016 –** All India Cultural festival.
- Implemented end to end digitization by accelerating all participation related procedures.

Karate

- **State level player.** Won medals at NCR Karate tournament.
- Promoted to **Brown Belt 1st Kyu, Shotokan style Karate,** certified by **Traditional Karate Renemi (TKFI).**
- Participated in International Karate workshop headed by **Senesi Rajeev Sinha, President TKFI.**

Successfully completed **A1 & A2 German Language** at *Goethe-Institut, Delhi.*