Abhishek **Verma**

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Education

Vellore Institute of Technology (VIT University) — *Chennai 600127, T.N. India*

Bachelor of Technology in Electronics & Communication Engineering| CGPA 8.95/10 — *July 2016 - May 2020*

Delhi Public School (DPS), Bhilai — *Bhilai 490006, C.G. India*

Grade 12 | Percentage 91% — *June 2014 - May 2015*

Delhi Public School (DPS), Bilaspur — *Bilaspur 495001, C.G. India*

Grade 10 | CGPA 10/10 — *April 2012 - May 2013*

Experience

•Machine Learning Intern — *Chennai 600127, T.N. India*

Mellon Ai — *June 2020 - Present*

- Working on improving health care facilities based on user experience by capturing their emotions using deep neural networks.
- Employed R-Sync for data transfer between camera module and remote servers.

•Undergraduate Researcher — *Chennai 600127, T.N. India*

Vellore Institute of Technology (VIT) — *July 2018 - April 2020*

- Worked on Deep Learning with emphasis on developing new hidden layer architecture and algorithms for facial emotion recognition in Convolutional Neural Network (CNN).
- Implemented Convolutional Neural Network (CNN) for Speech Recognition System using Mel-frequency cepstral coefficients (MFCC).
- Used TensorFlow, Pytorch in Spyder IDE. GPU Programming using CUDA for accelerated computing.

•Summer Intern — *Hyderabad 500062, T.S. India*

Electronics Corporation of India Limited (ECIL) — *April 2019 - June 2019*

- Developed an efficient implementation of a fully combinational pipelined S-Box on Field Programmable Gate Array (FPGA) for data encryption & signal processing.
- Used Xilinx ISE simulator for Field Programmable Gate Array (FPGA) designing in Hardware Descriptive Language (HDL).

•Technical Head — *Chennai 600127, T.N. India*

IEEE Signal Processing Society (SPS), VIT Student Chapter — *April 2018 - November 2019*

- Worked as the technical head at the student chapter for one year, looked after all the technical activities for organising Hack-a-Thons, Code-a-Thons & Project Expos. with nationwide participation.
- Assisted chapter members towards new innovative project development and research works in Signal Processing and Machine learning.

•Project Intern — *Melbourne, VIC 3122, Australia*

Swinburne University of Technology — *June 2018 - July 2018*

- Developed intelligent data routing algorithms for the Vehicular Ad. Hoc. Networks (VANET) in autonomous cars at the advanced technological center (ATC).
- Worked along with 'VicRoads' in developing smart solutions to reduce traffic congestion in Melbourne Metropolitan Area.

•Summer Intern — *Kolkata 700017, W.B. India*

Spiral Learning Pvt. Ltd. — *May 2018 - June 2018*

- Worked on student database management systems for their ongoing project, worked with PHP for the database engine maintenance.
- Search Engine Optimization (SEO) techniques to drive organic traffic.

Research Publications

• **Abhishek Verma**, Piyush Singh, John Sahaya Rani Alex. Modified Convolutional Neural Network Architecture Analysis For Facial Emotion Recognition. *In International Conference on Systems, Signals and Image Processing (IWSSIP), Osijek, Croatia.* IEEE, 2019. **DOI: 10.1109/IWSSIP.2019.8787215**

• Md Amaan Haque, **Abhishek Verma**, John Sahaya Rani Alex, Nithya Venkatesh. Experimental Evaluation of CNN Architecture for Speech Recognition . *In International Conference on Sustainable Technologies for Computational Intelligence (ICTSCI), Jaipur, India.* Springer, 2019. **DOI: 10.1007/978-981-15-0029-9**

• **Abhishek Verma**, Piyush Singh, John Sahaya Rani Alex. Disease Detection and Identification for Coconut Palm Plantation. *Computers and Electronics in Agriculture Journal* SPRINGER 2020 **(Under Review)**

Projects

- **Disease Detection in Coconut Plantation Using Transfer Learning. <GitHub-Link>**

  Deep Learning (Capstone Project)
  Used transfer learning technique along with Convolutional Neural Networks (CNN) to detect early symptoms of Basal Stem Rot (BST) in Coconut Plantation. Developed a Web App. to deploy the model using Flask. The Web App. instantly classifies the diseases and provides an array of remedies to farmers at their fingertips.

- **Score Prediction System for IPL (Cricket League). <GitHub-Link> <Web-App-Link>**

  Machine Learning and Sports Analytics
  Score prediction System for Indian Premier League (IPL - Cricket tournament) using last 10 years of ball by ball dataset. The regression model works on 50+ features including stadium track record, past performances of teams against each other etc. Pragmatic RMSE value was achieved. The web application was deployed on Heroku cloud server using Python Flask framework.

- **Interactive Chat-Bot. <GitHub-Link>**

  Natural Language Processing
  The chat-bot was trained on the data-set which contained categories (intents), pattern and responses. Special recurrent neural network (LSTM) was used to classify which category the user's message belongs to and then gave a random response from the list of response.

- **Modern-Art Generation via Generative Adversarial Networks (GANs). <GitHub-Link>**

  Neural Networks and Fuzzy Control
  Used Generative Adversarial Networks (GANs) to build a deep-net that was capable of not only learning a distribution of the style and content components of many different pieces of art, but was also able to novelly combine these components to create new pieces of art.

- **Voice Recognition Systems using MATLAB. <GitHub-Link>**

  Digital Signal Processing
  Developed a voice recognition system using Mel-frequency cepstral coefficients (MFCC) and dynamic time warping (DTW) with higher accuracy and improved results in MATLAB. The project was further developed to control a RF car using voice commands.

- **Augmented Reality (AR) Shopping Mall App. <GitHub-Link>**

  Mobile Application Development
  Designed & developed an Augmented Reality app for shopping malls using Unity Engine and Vuforia development package. The app lets you scan any product and displays product info in an augmented reality environment and lets you update your shopping cart.

Skills

Programming Language	C, C++, Java, Python, Matlab, Shell Script, VHDL.
Machine & Deep Learning Tool	TensorFlow, Keras, OpenCV, PyTorch, Flask (Web-Framework)
Databases	SQL, MongoDB, PostgreSQL.
Simulation Software	Arduino, Proteus, Cadence Virtuso, P-Spice, OptSim, Keil-5, NS2.
Micro-Controller	Arduino, Atmel 8051, Raspberry Pi.

Extra-Curricular

Organiser & Tech. Head @ Code-BUZZ

TECHNO-VIT 2018

- Organised online coding contest during the technical fest Techno-VIT 2018 with participation from all over the country.
- Developed online coding competition portal with automatic code grading and ranking system.

Organiser @ General Tech. Quiz

IEEE day 2018

- Organised the Inter Branch quiz contest during the IEEE day 2018.
- Helped student show their quizzing talent over a broad range of topics.

Member @ Code-Y-Gen

Game development club

- The club helped students learn about game development in UNITY game engine.
- Helped students to develop in and outs of competitive coding skills.

MOOCs

Udemy	Machine Learning A-Z: Hands-On Python & R in Data Science.
Udemy	Deep Learning and Computer Vision A-Z: OpenCV, SSD & GANS.