Tezuesh Varshney

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Education

- **Zakir Husain College of Engineering and Technology** — Aligarh Muslim University, Aligarh
  Bachelor of Technology in Computer Engineering ; CGPA: 9.216/10.0 — *Aug. 2016 – 2020 (Expected)*
- **Sayyid Hamid Senior Secondary School** — Aligarh Muslim University, Aligarh
  Senior Secondary School; Percentage: 88.8% — *July 2014 – May 2016*

Research and Experience

- **Indian Institute of Technology, Hyderabad** — *June 2019 - August 2019*
  *Research Internship under guidance of **Dr. Aditya Siripuram***
  - Worked on attacking and generating probable dataset given a black box image classifier using Generative Adversarial Network (GAN)
  - Worked on the stability of GAN.
- **Autonomous Underwater Vehicle Club | Aligarh Muslim University** — *September 2018 - Present*
  - Developing an Intelligent Agent to facilitate the control, dynamics and vision of Underwater Vehicle.
  - Using camera, pressure sensor and IMU to perceive the environment.

Projects

- **Analogy Generation:** — *August 2019 - Present*
  Working on understanding and generating analogy given a context, advised by **Prof. M. M. Sufyan Beg** and **Prof. Misbahul Haque**.
  - Understanding how semantic knowledge interfaces with human cognition and how these systems are recruited during language learning.
  - Working on knowledge graph to provide a reasoning ability to machines.
- **3D Point Cloud Modeling:** — *April 2020 - May 2020*
  - PyTorch implementation of Learning Representations and Generative Models for 3D Point Clouds
  - Generative Modeling on ShapeNet dataset using Autoencoder and GANs
- **Apery:** — *August 2018 - November 2018*
  Implemented algorithms to generate artistic images, advised by **Prof. Mohammad Sarosh Umar**
  - Applied transfer learning using pre-trained model VGG-19 to stylize an image into other.
  - Used Hill Climbing algorithm to regenerate Images using basic primitives.
- **Document Analysis using Graph Convolution Network**:
  - Build a global heterogeneous graph for representation of words and documents for 20 Newsgroups dataset.
  - Implemented a two-layer Graph Convolution to categorize the document in one of 20 given classes.
- **Mini-Projects**
  - **Fine-Tuned OpenAI's GPT-2 '124M' model** to generate abstract of paper given the title and vice versa.
  - **Fine-Tuned UlMFiT** for sexism classification on r/WritingPrompts subreddit.
  - **EventFX:** Build an app using Unity and ARCore that enhance the experience of concerts and events using AR.
  - **Harry Potter RNN:** LSTM trained on Harry Potter and Sorcerers Stone.
  - **Carsthaan:** Web-App to find the nearest parking spot, giving real-time info on how many spots are open in a garage thus helping with traffic related problems.
  - **Quine McCluskey Method:** An algorithm to minimize Boolean expression given min-terms to optimize the cost of digital circuit.
  - **Ulams Spiral:** Javascript Implementation to visualize square spiral, with prime indicated along the spiral.
  - **Perlin Noise:**Visualization of natural appearing texture on Computer generated surfaces.

Coursework

MIT 6.006: Introduction to Algorithm; CS224n: Natural Language Processing with Deep Learning (2019); CS231n: Convolutional Neural Networks for Visual Recognition (2018), *deeplearning.ai*; *fast.ai*; Multivariate Calculus; Probability, Statistics and Random Processes; CS224W: Analysis of Networks (2018) [On-going]

Skills

- **Languages**: Python, Javascript, C++, SQL, Java
- **Frameworks**: Keras, Tensorflow, PyTorch, scikit-learn, OpenCV, ROS, MySQL, ThreeJS, p5.js
- **Tools**: Git, Vim, zsh, ipython, jupyter, LaTeX

Award and Activities

- Won **HackData 2019** 24-hr long hackathon organised by Shiv Nadar University
- Ranked **4 among 128 teams** in Autonomous Underwater Vehicle Competition **NIOT SAVe 2019** organised by **IIT-Madras**.
- Qualified as best team from AMU for **ACM-ICPC Online Round 2017-18**.
- Established **AMU-OSS** an Open Source Software (OSS) Society in college which now has more than 150 students.
- Qualified **Google CodeJam 2018** and **SnackDown 2018** and have scored at programming contests.
- **Contributor** at Oppia foundation and OpenGenus Foundation.
- Taught underprivileged students at **Mantra4Change**, a Bengaluru based NGO.
- Volunteered at **eVidyaloka Organization**, which provides remote classroom and link students and teachers.
- **Hobby:** Solving Combinatorics problems, Football, Photography.