Muskan Goyal

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Education

2017 - Present   **Maharaja Agrasen Institute of Technology**, Delhi, India
B.Tech in Computer Science and Engineering | GPA: 8/10.0
Featured Coursework: Algorithm design and analysis, Computer Networks, Software engineering, Database management systems, Artificial Intelligence, Theory of Computation, Software testing.

Research Experience

2021   *Undergraduate Researcher* **(Minor Project)**
- Proposed a method for generating domain-controlled titles for scientific papers using text-to-text transformer model
- Framework: Python (Pytorch)

2020   *Undergraduate Researcher, collaborated with professors from* **Near East University, Mersin, Turkey and State University of Ceará, Brazil.**
- Proposed and implemented a GAN called CovidGAN that generated synthetic chest X-ray images to enhance the performance of CNN for Covid-19 detection. The research aimed at improved Covid-19 detection and more robust radiology systems. Paper published in IEEE Access. (paper)
- Framework: Python (Keras)

2019   *Undergraduate Researcher at MAIT, collaborated with professors from* **Cairo University, Egypt and Edge Hill. University, Lancashire, England.**
- Proposed and implemented an optimised DenseNet model which has been contrasted with the current CNN architectures by considering two (time and accuracy) quality measures. The study indicated that the performance of the optimised DenseNet model was close to that of the established CNN architectures with far fewer parameters and computation time. Paper published in Computers and Electronics in Agriculture, Elsevier. (paper)
- Frameworks: Python (TensorFlow and Keras)

Publications

2020   Abdul Waheed, **Muskan Goyal**, Deepak Gupta, Ashish Khanna, Fadi-Al-Turjman, P. Rogerio Pinheiro.
"CovidGAN: Data Augmentation using Auxiliary Classifier GAN for improved Covid-19 Detection". Published in IEEE Access, volume 8, 91916-91923.
 PDF

2020   Abdul Waheed, **Muskan Goyal**, Deepak Gupta, Ashish Khanna, Aboul Ella Hassanien, Hari Mohan Pandey.
"An optimized dense convolutional neural network model for disease recognition and classification in corn leaf". Published in Computers and Electronics in Agriculture, Elsevier.
PDF | DOI

2021   Abdul Waheed, **Muskan Goyal**, Nimisha Mittal, Deepak Gupta. *"Domain Controlled Title Generation with Human Evaluation"*. Accepted among top 20% papers in the 4th international conference on innovative computing *and communication (ICICC 2021)*.
PREPRINT

Projects

2021 **DOMAIN CONTROLLED TITLE GENERATION FOR SCIENTIFIC PAPERS WITH HUMAN EVALUATION**
- Proposed a method for automatic domain-controlled title generation using transformer model.
- Provided meta-information about the domain using the additional token technique.
- Compared the titles generated by the model with human-generated titles by performing the human evaluation.

2020 **DATA AUGMENTATION USING AUXILIARY CLASSIFIER GAN (ACGAN) FOR IMPROVED COVID-19 DETECTION**
- Proposed and implemented an ACGAN based model called CovidGAN for the generation of synthetic chest X-ray images.
- Also, designed and implemented a CNN-model for Covid-19 detection.
- The artificial data generated from CovidGAN was used for improved Covid-19 detection.
- Comparison analysis was done to investigate the performance of CNN with actual data and synthetic augments plus actual data.

2020 **PROPOSED AN OPTIMISED DENSE CONVOLUTIONAL NEURAL NETWORK FOR CORN LEAF DISEASE RECOGNITION AND CLASSIFICATION**
- A DenseNet model was implemented for diseases recognition and classification in corn leaf.
- Performance comparison was done with state-of-the-art models.
- The performance of the optimized DenseNet model was close to that of the established CNN architectures with far fewer parameters and computation time.

2019 **CROPIFY APPLICATION** (GitHub)
- A mobile application that can identify 5 types of crops using only field photo of the crop.
- The photo and crop information along with live geo-location is stored in firebase realtime database.

2019 **IMAGE CAPTION BOT** (GitHub)
- Used a CNN+LSTM based model architecture to generate captions that aptly describe images.

Achievements and Responsibilities

2018 **Google India Challenge Scholar for Android Track** *(Udacity)*

2019 **Grand Finalist in Smart India Hackathon 2019** (certificate)

2020 **Volunteer at ICICC 2020** *(International Conference on Innovative Computing and Communication)*
- Part of the management team

2020 **Volunteer at ICDAM 2020** *(International Conference on Data Analytics and Management)*
- Part of the management team, anchor, and reviewed papers. (certificate)

Certifications

2019 **Machine Learning Trainee at Coding Blocks**, Pitumpura, Delhi (certificate)
Course Contents: Regression, SVM, Decision Trees, Naive Bayes, Deep Neural Network, CNN, RNN, LSTM, GAN.

2018 **Android Development Trainee at Coding Blocks**, Pitumpura, Delhi (certificate)
Course Contents: Activities and Basic UI Building, Adapters and ListViews, Intents, Fragments, Services, permission Management, Menus and Preferences, Data Storage and 3rd party libraries.

Skills

Proficient with C, C++, Python (TensorFlow, Keras, PyTorch, OpenCV), Android Development.