Amitojdeep Singh

Computer Science and Economics Student

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Education

B.E. (Hons.) Computer Science
2014 - 2019

Birla Institute of Technology and Science, Pilani

Bachelors degree as a part of dual degree programme

M.Sc. (Hons.) Economics
2014 - 2019

Birla Institute of Technology and Science, Pilani

Masters degree as a part of dual degree programme

Technical Skills

Languages: Python, C, C++, JAVA, SQL, Scheme, Prolog, MASM

Major Courses Data Structures and Algorithms, Object Oriented Programming, Database Systems, Operating Systems, Machine Learning, Information Retrieval, Computer Architecture

Frameworks: TensorFlow, Theano, Keras, OpenCV, PIL, NumPy, SciPy, Graphlab Create, Verilog, Proteus

OS: Windows, Linux, Android

Experience

Summer Research Intern
June 2017 - July 2017

Central Scientific Instruments Organisation (CSIR-CSIO), Chandigarh

- Deep Convolutional Neural Networks for Traffic Sign Recognition and Detection on GTSRB benchmark, adapted for traffic signs of Chandigarh using transfer learning
- 3D Convolutional Neural Networks for lung nodule detection on LUNA!6 dataset

Software Development Intern
May 2016 - July 2017

Yrals Digital, Mumbai

- Content Aware Image Processing for live execution on the media engine using PIL & OpenCV
- Data Mining and Natural Language Processing for content generation & augmentation using Beautiful Soup, Named Entity Recognition (NER), NLTK and dbpedia

Projects

Neural Networks for Stock Price Prediction
August 2017 - December 2017

- Designed a Multimodal and Multitask Deep Learning Model to predict stock price movement and volatility using Price data and News Headlines
- Achieved a prediction accuracy of **74.93%** for price movement direction and MSE of **0.0017** for volatility

[Report, Code]

Deep Convolutional Neural Networks for Traffic Sign Recognition
June 2017 - July 2017

- Achieved 99.38% classification accuracy using ensemble of VGG inspired model instances with added batch normalization layers
- Ranked 7th internationally on the GTSRB benchmark, beating any human performance based approach

[Report, Code]

ATU: Adaptive Template Update for Constructive Fingerprint Identification
January 2017 - December 2017

- Minutiae points were mosaicked using Thin Plate Spline transformation to mimic natural deformation during registration.
- High confidence test fingerprints were used to update the database to improve the accuracy.
- Achieved 100% CRR and 20% EER for fingerprints of 100 users of FVC 2004 database.

[Paper, Code]

Semantic Similarity Analyser and Predictive Typing System
October 2017 - Novemeber 2017

- Used **Manhattan LSTM** to predict semantic similarity of two query phrases
- **Google word2vec** was used to generate embeddings of query phrases
- Achieved an accuracy of **80.35%** on *Quora Duplicate Questions Dataset*
- Semantic similarity between current sentence and sentences in corpus was used for predictive typing

[Report, Code]

Multi-person Pose Estimation for Real Time Video
January 2018 - Present

- Using VGG 19 outputs of video frame by frame to extract key points and match them using Part Affine Fields
- Implementing the system on android based device for practical application

Achievements

German Traffic Sign Recognition Benchmark
June 2017 -

GTSRB

Achieved 7th rank internationally on German Traffic Sign Recognition Benchmark beating all known human performance based techniques

KVPY Mentorship Award
2013 -

Indian Institute of Science (IISc)

Awarded the Kishore Vaigyanik Protsahan Yojana (KVPY) mentorship by the Indian Institute of Science(IISc), Bangalore for excellence in academics

Volunteer Experience

Financial Head
May 2016 - April 2017

Economics and Finance Association, BITS Pilani

· Raised, managed and allocated funds & resources for the semester events and year-round operating expenses

· Organised lecture series, seminars & events by managing 40+ members

Member
2014 - Present

Photography Club, BITS Pilani

Participated in club activities including organising exhibitions, hands on sessions and event coverage

Hobbies and Interests

My hobbies are photography, travelling, learning about technology & playing badminton