VIJAY PRAKASH DWIVEDI

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RESEARCH INTERESTS

- Machine Learning and Applications
- Deep Learning on Graphs

EDUCATION

- MOTILAL NEHRU NATIONAL INSTITUTE OF TECHNOLOGY ALLAHABAD, UP, INDIA **2014 - 2018**

Bachelor of Technology in Computer Science and Engineering
CGPA (200 credits): 7.71/10 Last 4 semesters (100 credits) CGPA: 7.95/10

- TRINITY INTERNATIONAL HSS/COLLEGE, KATHMANDU, NEPAL **2012 - 2014**

Higher Secondary School Education (Class XII) - Mathematics, Physics & Chemistry Percentage: 86.8

- GAUTAM SECONDARY SCHOOL, BIRGUNJ, NEPAL **2012**

Secondary School Education (Class X) Percentage: 88.8

RESEARCH EXPERIENCE

FEB 2019 - PRESENT

RESEARCH ASSISTANT, Nanyang Technological University, Singapore **Mentor**
Deep Learning for Graph structured data Prof. Xavier Bresson

- Developing a general neural network model with convolution and attention mechanism for node and graph classification (*in progress*)

DEC 2018 - FEB 2019

SOLUTION CONSULTANT, Francium Technologies Pvt Ltd, Chennai **Mentor**
Removal of Noise in Document Image Processing Arun Prakash

- Developed a Masked RCNN based model to remove noise (signatures/stamps/tags) for processing document images in automatic text retrieval

MAY-JULY, 2017

RESEARCH INTERN, International Institute of Information Technology (IIIT) Hyderabad **Mentor**
Beyond Word2Vec: Embedding Words and Phrases in Same Vector Space Prof. Manish Shrivastava

- Designed a new Siamese Recurrent Neural Network (RNN) based approach to generate vector representation of multi-word units (phrases/n-grams) maximizing the units' semantic meaning

MAY-JULY, 2017

RESEARCH INTERN (Remote), Cognitive Big Data Informatics Research Lab, University of Stirling **Mentor**
Context Aware Multimodal Deception Detection Using Deep Learning Prof. Amir Hussain

- Developed a novel methodology (multi-input modality network) to detect deceit using deep neural networks (LSTM for text, CLSTM for videos) and SVM classifier (for audio)

PUBLICATIONS

1. **Vijay Prakash Dwivedi** and Manish Shrivastava. Beyond Word2Vec: Embedding Words and Phrases in Same Vector Space, International Conference on Natural Language Processing (ICON), Kolkata, 2017
2. **Vijay Prakash Dwivedi**, Saurav Jha, Deepak Kumar Singh and Ranvijay. Gender Classification of Blog Authors: With Feature Engineering and Deep Learning using LSTM Networks, International Conference on Advanced Computing (ICoAC), Chennai, 2017
3. † Mandar Gogate, Ahsan Adeel and Amir Hussain. Deep Learning Driven Multimodal Fusion For Automated Deception Detection. IEEE Symposium Series on Computational Intelligence (SSCI), 2017

† *This paper presentation was an outcome of my research internship (CogBID, University of Stirling)*

COURSES TAKEN

- **Audited -** Machine Learning (Coursera - Stanford University: Andrew Ng), Deep Learning for Natural Language Processing (Stanford University: Chris Manning, Richard Socher)
- **Selected College Courses -** Data Mining and Warehousing (CS 1733), Genetic Algorithms (CS 1741), Scientific Computing (CS 1602), Database Management System (CS 1605), Operating Systems (CS 1502), Computer Networks (CS 1503), Object Oriented Modeling (CS 1504), Analysis of Algorithms (CS 1401), Graph Theory and Combinatorics (CS 1402), Data Structures (CS 1301)

SELECTED PROJECTS

REAL TIME SCENE UNDERSTANDING, 2017-2018 **ML/CV**
Supervisor: Dr. Dushyant Kumar Singh MNNIT Allahabad

- Identifying scenic attributes and recognize human perceptible objects in real time visuals
- Implemented Visual Q & A for answering natural language queries on an image
- Deployed an application on a GPU server to be accessed by any PC inside MNNIT

IMAGE ANNOTATION USING DEEP LEARNING, 2017 **ML/CV**
Supervisor: Dr. Dushyant Kumar Singh MNNIT Allahabad

- Identified the various objects (out of 1000 classes in the output vector) present in an input image
- Used a 16-layer Deep Convolutional Neural Network (CNN) architecture and transfer learning
- Intermediate output probabilities were maximized using region-based multiple feeding of the same image to the model and only giving the probabilities over a threshold as the output (object identified)

GENDER CLASSIFICATION OF BLOG AUTHORS, 2016 **ML/NLP**
Supervisor: Dr. Ranvijay MNNIT Allahabad

- Identified gender of authors from articles/blogs using various semantic and textual features
- Also used an additional POS-sequence patterns representing true regularities, as a feature class
- Trained it on Logistic Regression and Linear SVM Classifier and achieved accuracies over 75.0%
- Improved accuracy using deep learning architectures (Bidirectional LSTMs) to around 81%

WEB PORTAL FOR CENTRAL LIBRARY, MNNIT ALLAHABAD, 2016 **Institute Project/Web**

- Web portal for Textbook Lending Bank for access to college students using HTML, CSS, JavaScript, PHP and Ajax
- Used MySQL for maintaining databases of around 3500 students

FORWARD HTTP PROXY SERVER, MNNIT ALLAHABAD, 2016 **Institute Project/Networking**

- Set up a forward proxy server for access of external internet connection to students of the college
- Used Squid-caching proxy (v 3.5) to set up the server
- As a Network Administration Team Member, monitoring other proxy servers to improve internet access

HACKS

Built in 'Hack In The North' – Hackathon at IIIT Allahabad

LISTHINT – GOOGLE CHROME EXTENSION, 2017

- A Google Chrome Browser extension to automatically recommend web pages (sites) which are similar to the semantics of currently opened web page in the browser
- Uses Natural Language Processing (NLP) to automatically extract summary of the current opened web page and send the keywords to a Python-based server to fetch similar sites

SCRIPT BOT FOR FACEBOOK, 2015

- Wrote script in python to automatically post on Facebook profiles' timeline on birthdays and to write a post on multiple Facebook groups
- Used 'selenium' in python to do the automation with the script doing the task in web browser

TECHNICAL SKILLS

Languages & Frameworks

- Advanced: C, Python, Numpy, PyTorch, NLTK
- Intermediate: Keras, TensorFlow, JavaScript, JQuery, PHP, MySQL, Bootstrap, scikit-learn
- Basic: Ajax, BeautifulSoup4, selenium, Octave

Softwares and Tools

- OS: Linux, Windows
- Tools: LATEX, Azure Data Factory, Google Cloud, Microsoft Office

TEST SCORES

GRE General: Overall: 323 - Verbal Reasoning 154, Quantitative Reasoning 169, Analytical Writing: 3.5

SCHOLASTIC ACHIEVEMENTS

- 'Top 12' in 'Hack In The North' – India's largest student-held hackathon by IIIT Allahabad with a student participation of 250+
- Full Scholarship for B.Tech (4 years) in MNNIT Allahabad under Nepal-Aid Scholarship Scheme by the Embassy of India, Kathmandu, Nepal *[All Nepal Rank - **109**, Coverage - **US$ 18000**]*
- District Topper Award (Rank 1 in Parsa District, Nepal) in the Secondary School (Class X) Board Examinations in 2012

POSITION OF RESPONSIBILITIES

- Organiser of Hack 36, a 36-hour hackathon at MNNIT Allahabad, which featured 182 participants from 21 cities across India (http://www.hack36.com)
- Co-Organizer of the first TEDxMNNIT – independently organized TED event in April 2017 (http://www.tedxmnnit.in)
- Summit Coordinator and Technical & Content Head of 'Renaissance 2017 – An Entrepreneurship Summit' of MNNIT Allahabad (http://www.renaissance.ecellmnnit.in)
- President of Trinity Computer Council - official Computer Club of Trinity Int'l College Kathmandu, Nepal for the year 2013/14
- School Captain of Gautam Secondary School, Birgunj, Nepal for the year 2011/12