Lalchand Pandia

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Education

Indian Institute of Technology Kanpur
M.Tech. Computer Science and Engineering (CSE)
2015-2017 GPA: 8.33/10.00

Kalasalingam University, Krishnankoil
B.Tech.(Honours) Computer Science and Engineering (CSE)
2008-2012 GPA: 9.27/10.00

Research Projects

Encoder based Attention Mechanism for Word Sense Disambiguation
Short Paper submitted at EMNLP 2019 *Advised by Dr Harish Karnick*

- In this paper we presented the idea of transfer learning using a pre-trained BERT model to fine-tune a model for Word Sense Disambiguation.
- Used a weighted loss function to handle extreme imbalance of senses in datasets.
- Achieved state-of-the-art results on hard, line, serve, and interest datasets.

Word Sense Disambiguation by learning Long Term Dependencies
M.Tech Thesis [Supervised by Dr Harish Karnick] *Jan 2016 - Jun 2017*

- We applied bi-directional LSTM to use sequence information to disambiguate senses of a polysemous word.
- Achieved better macro F1 scores than state-of-the-art on several datasets like hard and serve.
- We tried the same approach on selected words from One million sense tagged corpus and achieved encouraging results.

A Probabilistic Model for Learning Multi-Prototype Word Embeddings
Course Project [Supervised by Dr Piyush Rai] *Jan 2016 - May 2016*

- Implemented the multi sense skip gram model as discussed in this paper to learn **multiple word vectors** for a polysemous word.
- Explored the effect of approach on several public benchmark word similarity tasks' datasets.

Car Model and Make Detection
Course Project [Supervised by Dr Harish Karnick] *Jan 2016 - May 2016*

- Developed a machine learning model which predicted model of a car and its make in a video.
- Used video data from real time traffic monitoring system of the institute, recorded from Jan 2015 to Dec 2015.
- Utilized Fast R-CNN for feature extraction on car images extracted from video frames.
- Classified images using multi-class SVM, Random Forest, and Logistic Regression.

Building Support Vector Machines with Reduced Classifier Complexity
Course Project [Supervised by Dr Harish Karnick] *July 2015 - Nov 2015*

- This project focused on the idea of getting support vectors using primal method as described in paper rather than the popular dual method whose space complexity increases as input size increases.
- Re-implemented the approach described in the paper in Python.
- Reproduced the results reported in the paper.

Hypervisor Security
B.Tech Project [Supervised by Dr P.Deepalakshmi] *Jan 2012 - May 2012*

- This project aimed to protect Type-I hypervisor against attacks which try to subvert hypervisor's page table. Our approach was based on paper.
- We implemented "non-bypassable memory lockdown" in BitVisor which involved protecting page tables from illegal updates.
- For testing efficacy of the technique and our implementation, we carried out synthetic attacks on the system.

Industry experience

Huawei Technologies India Pvt. Ltd
Senior Technical Lead, *Dec 2018- present*
Working on asynchronous replication of data between Huawei distributed NAS storage clusters particularly focusing on functionality and performance of I/O path.

IQLECT Software Solutions Pvt. Ltd
Data Scientist, *Aug 2018- Nov 2018*
Designed and implemented session based recommendation system using Gated Recurrent Unit for e-commerce apps.

NetApp India Pvt. Ltd
Member of Technical Staff II, *July 2017- July 2018*
Focused on backup of data from NetApp storage servers to backup devices such as tape using NDMP.

Tata Consultancy Services Pvt. Ltd
System Engineer, *Dec 2012- June 2015*
Worked on Java client-server applications dealing with insurance policies.

Teaching Experience

Teaching Assistant
Department of Computer Science, Indian Institute of Technology Kanpur

- Multiagent Systems: Games, Algorithms, Evolution (CS 785) *Spring 2017*
- Design and Analysis of Algorithms (CS 602A) *Fall 2016*

Achievements and Awards

- Ranked in top 0.3% (amongst 1,15,425 candidates) in Graduate Aptitude Test in Engineering(GATE), 2015, Computer Science.
- Secured 2nd rank in Computer Science and Engineering Department in Bachelor of Technology, 2012.

Skills

- **Programming Languages**: C, C++, Java, Python
- **ML frameworks and softwares**: TensorFlow, PyTorch, numpy, scikit-learn, pandas
- **NLP softwares**: spaCy, gensim, nltk, Stanford NLP toolkit

Relevant Coursework

Learning with Kernels, Machine Learning Tools and Techniques, Probabilistic Machine Learning