Curriculum Vitae

PERSONAL INFORMATION

Anshul Gupta

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WORK EXPERIENCE

Jun – Aug 2017

RIKEN Brain Science Institute, Japan

Internship and Lecture Course Student

- 'Theory of Mind' is a key concept in psychology that forms the basis of social interaction. We worked on understanding and implementing a computational model for the same.

July 2018 - Present

Indian Institute of Science (IISc), Bangalore

Prof. Sriram Ganapathy

- We are trying to understand how a second language is represented in an individual's brain. Our approach involves multiple modalities such as EEG, audio, and video recordings.

June 2018

Broadcom Neuromorphic Computing Workshop

IISc Bangalore

- Participated in the Indian chapter of the student research workshop for brain inspired computing and technologies (partner universities: Imperial College London, University College Dublin, Tel Aviv University). We developed a system using the SSVEP signal from the brain to control a robot to be used as an assistive device for patients affected by neuromuscular degenerative diseases.

Jan – June 2018

Research Student

Prof. Dinesh Babu Jayagopi

- We developed a novel technique to quantise nonverbal cue usage by public speakers into three categories in a completely unsupervised manner.

Jan – May 2018

National Institute of Mental Health and Neurosciences (NIMHANS)

- We developed an automated technique using deep learning for detection of cancerous regions in brain histopathology slides. This is an important challenge due to the extremely large size of image files, and analysis required at multiple zoom levels.

Jan 2018

Workshop on Brain, Computation and Learning

IISc Bangalore

- Participated in the second Workshop on Brain, Computation and Learning. The workshop brought together researchers from across the world in the fields of Computer Science and Neuroscience to help appreciate the close relationship between the two fields.

Jan – May 2018

Teaching Assistant

DS/NC 866: Advanced Machine Perception

Prof. Dinesh Babu Jayagopi

- The course covers various advanced models such as Deep Neural Networks, Time Series Models and Graphical Models with applications to object and speech recognition, document categorization, and object tracking.

Jan – May 2017

Research Student

Prof. Manish Gupta, Prof. Sujit Kumar Chakrabarti

- We worked on developing a novel technique to 'Automatically Grade Student Program Submissions' using Program Analysis. This is increasingly important with the growing popularity of MOOCs.

Jul – Dec 2016

Research Intern

Prof. G. Srinivasaraghavan

- We built a model for 'Automatic Music Genre Classification' influenced by its use in applications such as Spotify using GMMs and HMMs.

PUBLICATIONS

Gupta A., Jayagopi D.B. (2018). Unsupervised Speaker Cue Usage Detection in Public Speaking Videos. Proceedings of the 29th British Machine Vision Conference Workshop, Vision for Interaction and Behaviour Understanding (BMVC VIBE 2018).

EDUCATION

Aug 2014 - Present

Integrated Masters in Information Technology

International Institute of Information Technology, Bangalore

ADDITIONAL INFO

Projects

Machine Translation using Attention (2018)

Encoder Decoder model inspired from Cho et al (2014) and Bahdanau et al (2015).
(Python, Numpy, Tensorflow)

Language Models (2017)

Character and word level language models implemented using RNNs and LSTMs. From scratch (Python, Numpy), and in Tensorflow (Python, Numpy, Tensorflow)

Unsupervised Summary Generation (2018)

Novel technique for unsupervised generation of TED summaries using an autoencoder and information theoretic based loss function (Python, Tensorflow)

Tag Generation (2018)

TED talk tag generation using tf-idf scores for a bag of words and Naïve Bayes classification.

Tic Tac Toe Player (2017)

Reinforcement Learning based Tic Tac Toe player with near human level performance. (C++)

Automatic Classification of Impact Craters on Titan (2017)

Novel, automated method using SVM (Python, OpenCV)

Data Transfer System Simulation (2016)

Complete data transfer system simulated with BFSK modulation and BCH coding over a noisy (AWGN) channel. (Matlab)

Compression Algorithms (2014)

Huffman (Python), Arithmetic (Matlab) and LZW (Matlab) Coding for character file compression;
Audio Compression using FFT and DCT. (Matlab)

Honours and awards

- Deans Merit List in college – 2014
- Cleared Pre-RMO (Regional Maths Olympiad) – 2012
- Awarded 'Most Original Project' in school science festival for 'RoboCleaner' robot – 2010

Certifications

- Machine Learning Course by Stanford on Coursera (97.6%)

Other Interests

Table Tennis, Drawing, Singing

Campus Activities

- Founder, Comic Club of IIITB. Created comic strips and hosted graffiti wall and pop culture based events under club activities (2015 - Present).
- Student Mentor in inaugural Student Mentor Program for first year students (2017).
- Single Point of Contact (SPOC) for table tennis in college sports fest 'Spandan' (2016).