CIRRICULUM VITAE
ASHISH RANJAN

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EDUCATION

- **Indian Institute of Technology, Banaras Hindu University**, **Varanasi**
  - B.Tech in Electrical Engineering
  - CGPA - 7.93/10 (absolute grading)

RESEARCH INTERESTS

- Artificial Intelligence, Machine Learning, Natural Language Processing

TECHNICAL SKILLS

- **Languages**: Python, JAVA, C
- **Tools & Frameworks**: Theano, Numpy, Scipy, Spring 3.0, MATLAB, Octave, HTML, XML

PROFESSIONAL EXPERIENCE

Senior Software Engineer, Samsung Research India, Bangalore **[June'13- Present]**

Smart Assistant (NLP, Deep Learning, AI), Advanced Technology Lab

- **NLP and Deep Learning**
  - Currently working on the iteration of natural language generation module using recurrent neural networks (LSTM).
  - Developed a classifier using an auto-encoder to train a data set with one class having very few data points.
- **NLP and AI**
  - Developed context based inference engine which uses the knowledge base to deduce the activities in a SMS/WhatsApp conversation and analysis of user sentiment. Now deployed as an android app *"JIFICAL"*.
- **Knowledge Representation**
  - Developed the knowledge base involving causal models, activity models and equivalent senses models.
  - Developed ontology manager module for efficiently processing the OWL ontology file and database.

Sluggishness detection using Artificial Neural Networks(Machine Learning), Creative Labs

- Conceived the idea and implemented proof of concept for sluggishness detection in smartphones using Artificial Neural Networks in Creative Labs Contest.

Multimedia Team (Image Processing), System Software & SOC

- Camera Sensor Data Compression
  - Designed and implemented a Scalable, High Throughput HW IP to decode high resolution Bayer images, compressed using a scheme based on Elias Gamma encoding of Run Lengths.
- Mobile vision processing unit design and verification
  - Developed the image dithering module Verified the mobile vision processing modules for 3-D scanning and memory interface in UVM.

- Processing and reconstruction of full resolution image out of sub band encoded images
  - Developed a unique storage mechanism to efficiently store image metadata.
- Image Compression SPIHT IP for Smartphone Display
  - Modified and optimized the SPIHT algorithm for implementation in hardware.

PATENTS AND PUBLICATIONS

- **"Method and Apparatus for Storing, Processing and Reconstructing Full Resolution Image out of Sub Band Encoded Images"** - United States Patent Application 20160110849 Kind Code: A1.

PROFESSIONAL DEVELOPMENT ACTIVITY

- **Coursera: Machine Learning by Prof. Andrew Ng, Stanford University**
  - Multivariate linear regression, Logistic regression, One-vs-all classification, Regularization.
  - Implemented digit recognition algorithm using Neural Networks.
  - Implemented Email Spam detector using Support Vector Machines (SVMs)
  - Implemented unsupervised learning algorithm: K-means.
  - Implemented data compression algorithm on image using PCA.
  - Implemented collaborative filtering algorithm for movie recommendation to users.
  - Implemented network anomaly detection algorithm.
- **Professor Geoffrey Hinton's online lectures on "Neural Networks".**

UNDERGRADUATE PROJECTS

- B.Tech Project – "Analysis And Applications Of Dual Stator, Dual Rotor Induction Motor"

EXTRACIRRUCALR ACTIVITIES

Volunteer work

- Volunteer Work – "SRI-B Seva" - a company promoted organization driven by employees. http://www.samsung.com/in/sri-b/srib_seva.html
- Volunteer Work – "Kashi Utkarsh" - An initiative of IIT BHU teachers and students to provide education to children living in slum areas. http://kashiutkarsh.com/

Positions of Responsibility

- Currently mentoring fresh recruits in the advanced technology lab team.
- Coordinator - Prastuti'12 - Paper Presentation Contest EEE Department, IIT BHU.