CIRRICULUM VITAE
ASHISH RANJAN

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EDUCATION

- **B.Tech in Electrical Engineering** from **Indian Institute of Technology, Banaras Hindu University**, Varanasi, with a CGPA of 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 Team

- Currently working on natural language generation using recurrent neural networks (LSTM).
- Developed context based inference engine which uses the knowledge base to deduce the activities in a SMS/WhatsApp conversation and analysis of user sentiment.
- 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.

Real Time Facial Emotion Recognition (Computer Vision), Multimedia Team, System SW & SOC

- Developed the module for facial feature extraction and dimensionality reduction using principal component analysis.

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

- Implemented proof of concept for sluggishness detection in smartphones using Artificial Neural Networks in Creative Lab Contest.

Camera Sensor Data Compression (Image Processing, Data Compression), Multimedia HWIP Team, System SW & SOC

- 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.
- Conceived and formally verified Architectural and Micro-architectural improvements in design reducing the Gate Count by 4x.

Mobile vision processing unit(Hardware IP Verification), Multimedia HWIP Team, System SW & SOC

- Developed the image dithering module (hardware design).
- Verified the mobile vision processing modules for 3-D scanning and memory interface in UVM.

Image Compression SPIHT IP for Smartphone Display, Multimedia HWIP Team, System SW & SOC

- Optimized the SPIHT algorithm for implementation in hardware.
- Worked on RTL implementation and functional verification of encoder and decoder.

PROFESSIONAL DEVELOPMENT ACTIVITY

- **Coursera: Machine Learning by Prof. Andrew Ng, Stanford University (link contains certificate)**
  - 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".**

PATENTS AND PUBLICATIONS

- **"Method and Apparatus for Storing, Processing and Reconstructing Full Resolution Image out of Sub Band Encoded Images"** granted **A1** by Samsung HQ Patent Office and filed in US.

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.
- Mentored intern in facial recognition project at Samsung Research.
- Coordinator - Prastuti'12 - Paper Presentation Contest EEE Department, IIT BHU.
- Mentored students in many Dance and Theatre workshops.