

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).

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 (Artificial Intelligence, Machine Learning), 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 set proper reminder for the user.
- 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

- 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.

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.

EXTRACURRICULAR 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.