ABHISHEK TIWARI

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EDUCATIONAL QUALIFICATIONS

Year	Degree/Qualification	Institution	CGPA/%
2014	B.Tech – M.Tech Dual Degree (Electrical Engineering)	IIT Kanpur	PG:**10.0/10.0** | UG:8.2/10.0
2009	Class XII (C.B.S.E)	Modern Sr. Sec. School, Kota	90.8%
2007	Class X (C.B.S.E)	Sophia Sec. School, Kota	90.0%

SAMSUNG R&D INSTITUTE, BANGALORE

Lead Engineer *Mar'16 – Present*

- Enhanced segmentation workflow by **automating** user-initialization using machine learning based techniques
- Accepted **EMBC'16** 4-page conference paper on cardiac structure segmentation algorithm (http://ieeexplore.ieee.org/document/7590892/)
- Awarded **Merit Award** in Samsung Best Paper Award (**SBPA'16**) competition among all R&D centers

Senior Software Engineer *Jul'14 – Feb'16*

- Developed semi-auto. image **segmentation** & **quantification** algorithms for **4D** (3D+t) cardiac ultrasound datasets
- Awarded **Employee of the Month** for rapid development of **visualization** functionality for prototype

SCHOLASTIC ACHIEVEMENTS

- Secured **AIR-12** in National Science Talent Search Examination (**NSTSE 2009**) conducted by Unified Council
- Received Certificate for achieving **National Top 1 percentile** in National Level Physics Olympiad (**INPhO 2009**) & **Statewise Top 1 percentile** in National Level Chemistry Olympiad (**INChO 2009**), conducted by **HBCSE**
- Obtained **AIR-296** in National Science Olympiad (**NSO 2007**) conducted by Science Olympiad Foundation

SUMMER INTERNSHIP

Philips Innovation Campus, Bangalore *May'12 - Jul'12*

Objective	• Developed an algorithm to **delineate** lesion boundary from Ultrasound (B-mode) & Elastography image
Methodology	• **Pre-processed** input image using histogram equalization and contrast enhancement techniques • Implemented **Fuzzy-based** edge enhancement algorithm for rough image segmentation • Refined roughly segmented boundary using **Active Contour** (snakes) technique • Extracted **4** elastographic and **4** b-mode features from the overlapping area of **two** segmented regions
Result	• Examined classification using a **dataset** of pathologically-proven **69** images (35 benign & 34 malignant)

MTECH THESIS

Automated Visual Surveillance and Tracking System, *M.Tech Thesis* *Jan'13 - Present*

- Implemented **real-time** video stabilization algorithm for HD video sequences using sparse feature tracking
- Parallelized computation employing OpenMP and OpenCV CUDA support to achieve **32** FPS for HD video sequences
- Established superior results when evaluated against **Deshaker** in terms of processing time & motion compensation

KEY ACADEMIC PROJECTS

Speaker Verification using Sparse Representations Classification *Jul'12 - Nov'12*

- Trained Universal Background Model (UBM) using over **200** speaker utterances of **40** different speakers
- Performed speaker verification using **MATLAB's Convex Optimization** Toolbox for **l1-norm** minimization
- Tabulated **Confusion matrix** & achieved an improved accuracy of **53.36%** compared to **49%** (trivial methods)

Algorithm Implementations: MATLAB *Jul'11 - Nov'11*

- Trained **Neural Network** using **Error-Back Propagation** algorithm and **Radial Basis Function** Networks
- Simulated Bit-Error Rate in AWGN System & **optimal Lloyd-Max Quantizer** as a function of Quantizer resolution
- Programmed **Costas receiver** to track carrier phase of a DSB-SC modulated signal & envelope detector for AM signals

Management of Technology *Jan'13 - Apr'13*

- Analyzed Corporate, Business Unit, Technology & Innovation strategy of **Walgreens Co.** (US Leading Drugstore Chain)
- Identified firm's **Core Competencies, Value Disciplines** model & Intellectual Property (**IP**) strategy
- Interpreted firm's Corporate, Business Unit strategy employing **PEST-**, **SWOT-** & **Porter's** five forces model

TECHNOLOGIES

- **Languages**: C/C++, Python, MATLAB
- **Packages**: Insight Toolkit (ITK), Visualization Toolkit (VTK), OpenCV
- **Interests**: Image Processing, Computer Vision, Machine Learning

RELEVANT COURSES

Digital Electronics	Image Processing	Digital Signal Processing	Fundamentals of Computing