Sandeep Bangalore Venkatesh

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RESEARCH INTERESTS: Game development, Augmented reality, Computer vision, Embedded systems

EDUCATION:

- *National Institute of Technology, Karnataka (B.Tech.)* — Electronics and Communication Engineering, GPA: 9.02 — July 2011 – May 2015
- *VVS Sardar Patel PU College, Bangalore (12th Grade)* — Karnataka Pre-University Board, Percentage: 91.83% — March 2011
- *Carmel High School, Bangalore (10th Grade)* — ICSE, New Delhi, Percentage: 94.85% — March 2009

WORK EXPERIENCE:

Samsung Research & Development Institute, Bangalore, India

***Hardware Engineer**, Standard Cell Libraries Library IP* — July 2015 – Present
***Manager :** Abhishek Ghosh*
Collaborating with a team to design hardware standard cell libraries. Working on MOSFET and FINFET technologies at 70nm, 28nm and 10nm. Understanding and automating design processes like technology benchmarking, flop robustness, latch node stability, EM validations.

RESEARCH EXPERIENCE:

National Institute of Technology Karnataka, India

***Undergraduate Thesis**, SMILE Lab, Department of Electronics and Communication* — July 2014 – May 2015
***Guide :** Dr. Deepu Vijayasenan*
Worked on a research project titled 'Speech enhancement using Beamforming Techniques'. The aim of this project was to capture high quality speech in applications like recording of voice using microphone array without any dependency on the microphone array geometry. For this, I used a multi-channel kurtosis based blind beamforming technique which is used to enhance speech originating from a particular direction and suppress noise from other directions by taking into account the spatial information originating from a target speaker with respect to a microphone array.

École Catholique d'Arts et Métiers (ECAM), Lyon, France

***Summer Research Intern**, Automatique Lab, Department of Automation & Computer Science* — May 2014 – July 2014
***Guides :** Prof. Jean-Noël Charvet (Head of the Department) and Prof. Christophe Jouve*
Worked on an industrial project titled 'Object Tracking in World Coordinates'. Objective was to determine whether a given machine equipped with a camera, and moving over a workstation containing several objects, was located exactly above a selected object. I augmented a coordinate system over the selected object once it was in the field of view of the camera and the camera further aligned its axis with the augmented Z-axis, thereby achieving the goal. Features from Accelerated Segment Test (FAST), Binary Robust Independent Elementary Features (BRIEF) and homography are the main techniques used.

Indian Institute of Science, Bangalore, India

***Summer Research Intern**, Spectrum Lab, Department of Electrical Engineering* — May 2014 – July 2014
***Guide :** Dr. Chandra Sekhar Seelamantula*
Worked on a research project titled 'Face Recognition using Sparse Based Encoding'. Implemented facial recognition using Eigen based feature extraction and l-1 minimization techniques using ImageJ libraries in Java. I investigated various techniques of facial recognition before implementing one. Considering the vast amount of data and features involved in facial recognition, we explored a sparse based representation of the input image in order to improve performance over a large dataset.

OTHER EXPERIENCE:

Game Development

Designed and developed a 3D version of PacMan with the same game mechanics as the original for AI. Created an imitation of Arkanoid game with pick-ups to increase ball size, speed, strength, etc. Developed a constant position first person shooter game. Currently designing and implementing a car racing game with AI and pick-ups to enhance the gaming experience.

Computer Vision and Microcontrollers

iMaid, a room cleaning robot which integrates android based user interface, image processing, microcontroller, Xbee and bluetooth modules for wireless transmission. Implemented an Intelligent home automation using GSM module for remote access. Implemented and programmed a GSM based digital clock for Engineer, technical fest at NITK. Wirelessly controlled servo mounted camera on a rover, which had two degrees of freedom, via data transmission between the rover and workstation.

Augmented Reality

Developed a marker (QR code) based AR book. I began by understanding the intricacies of augmenting a simple cube on the marker, and eventually mastered augmenting videos, animations and 3D models using FLARManager.

SKILLS:

Languages: C++, C#, Java, PERL.
Softwares: Unity, Visual Studio, MATLAB, Virtuoso, Photoshop, Illustrator.
Platforms: Windows, Linux

LEADERSHIP:

- *Convenor, Robotics Club, NITK* — July 2014 – May 2015
- *Coordinator, Creative design team, Cultural Fest, NITK* — January 2015 – March 2015
- *Coordinator, Automata, Electrical and Electronics Committee, Technical Fest, NITK* — July 2014 – Dec 2015

AWARDS & RECOGNITION:

- *CSIR Programme for Youth on leadership in Science* — 2009
  Recognition for being within top 0.1% of all students in 10th grade ICSE board examinations
- *Amul Vidya Shree Award* — 2009
  Recognition for outstanding academic performance in 10th grade ICSE board examinations
- *Rajyapuraskar (Governor's) Award in Scouts* — 2007

REFERENCES:

Dr. Deepu Vijayasenan	Electronics and Communication Department,NITK	E-mail: deepu.senan@gmail.com
Dr. Arulalan Rajan	Electronics and Communication Department,NITK	E-mail: perarulalan@gmail.com
Abhishek Ghosh	Samsung R&D Institute Bangalore	E-mail: abhishekghosh84@gmail.com
Prof. Jean-Noël Charvet	Head of Department, Automatique Lab, ECAM, Lyon	E-mail: jean-noel.charvet@ecam.fr
Dr. Chandrasekhar Seelamantula	Electrical Department, IISc, Bangalore	E-mail: chandra.sekhar@ee.iisc.ernet