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Suvam Patra

Curriculum Vitae

Education

2012 **M.Tech. in Computer Science and Engineering**, *Indian Institute of Technology Delhi*, New Delhi, *CGPA 8.966*(Current).

2010 **B.E. in Computer Science and Technology**, *Bengal Engineering and Science University Shibpur*, Howrah, *Marks(%) 85.57*.

2006 **West Bengal Council of Higher Secondary Educaton**, *St. Lawrence High School*, Kolkata, *Marks(%) 85.6*.

2004 **West Bengal Board of Secondary Education**, *Rishra Vani Bharati*, Hooghly, *Marks(%) 89.625*.

Master Thesis

Title *A Graph Cut approach to Depth Resolution Enhancement of a 3D scene using Kinect and HD Cameras*

Supervisors Dr. Subhashis Banerjee and Dr. Prem Kalra

Description My Project deals with a new efficient approach to depth resolution enhancement of a 3D scene captured using a single Kinect sensor and multiple HD cameras. It uses a Graph Cut Optimization approach to enhance the resolution of the scene.

Courses Taken at IITD

Fall 2010 Data Structures and Algorithms, Introduction to Logic and Functional Programming, Software Systems Lab, Digital image Analysis.

Spring 2011 Computer Vision, Computer Graphics,Wireless Networks, Minor project.

Projects

Mar,2011-May,2011 **Depth Enhancement in Kinect with HD cameras using Epipolar Constraint and NCC:** This project was done as a part of my Computer Vision Course Project in the Spring Semester. This project deals with the enhancement in resolution of the 3D point cloud given by Kinect. This was done by applying the Epipolar Constraint on the HD images, so that finding correspondence of a point in one image is a line search problem in another image. Then NCC guided by kinect data, was used to find the corresponding point on the line, which was triangulated and depth corrected by Kinect to give the enhanced point cloud.This point cloud filled up the holes as well as contained in it the extra information from HD cameras.

Jan,2011 -Mar,2011 **Ray Tracing in Graphics:** This was a course project in the Graphics Course.This project involved the Implementation of Ray Tracing with antialiasing and handling of deformed objects in the scene. We used this to generate different realistic scenes.

Mar,2011-May,2011 **A short animation using Particle Systems:** This was another course project in graphics in which a short animation of a scene in a pub was created. In this scene smoke and pouring of wine was simulated by using the concept of particle systems of physics in Graphics.

Mar,2011-May,2011 **Activity Detection in Human Beings using Sunspot Sensors(WSN):** This project was a part of the Wireless Networks Course in the Spring Semester of 2011. This project deals with the usage of the Sunspot wireless sensor nodes to detect diferent types of movement of a person. The sunspots were attached to different body parts of a person,and then the 3D acceleration feed from the sensors were used to analyze the type of movement the person was performing.

July,2009-May,2010 **Vectorization of Engineering Drawing Images:** This was my B.E. Thesis Project. This project was aimed at converting raster images of engineering drawing books into vector or digital form so that it can be later read by a software like CAD and again be converted into images. It saves a lot of space by just converting the images into vector form.

May,2008-Aug,2008 **Automated Parking System using infrared Sensors:** This was an independent project. In this project, the hardware for an automated parking lot was developed by using Infrared Sensors a microcontroller(8051) and an LCD to display the commands.This system can detect a car at the entrance and then according to the availability of space in the parking lot, it can allot him a place nearest to his position and on no vacancy it will flash on the screen about the non-availabilty of space and will ask him to wait.

Publications

VISAPP 2012 **High Resolution Point Cloud Generation from Kinect and HD Cameras using Graph Cut**, *Suvam Patra,Brojeshwar Bhowmick,Subhashis Banerjee*,Prem Kalra, *Status:Communicated*

Technical Skills

Programming Languages	C,C++,C#,Java,Python	Platforms	Windows,Linux/Unix,MAC OSX
	PHP,HTML,Apache,ASP DOT NET	Softwares	Matlab,Visual Studio,Oracle 9i
	SQL,PROLOG,SML		NetBeans,Meshlab,Blender

Scholastic Achievements

Inter College Technical Festival: Won Second Prize for building a fully Automated Line Follower Robot at Tech Fest organized by Haldia Institute of Technology.

Inter College Tech Fest: Won First Prize for presenting a paper in the event of "Papyrus" in the Tech Fest organized by Bengal Engineering and Science University, Shibpur.

Qualifying Examinations

GRE Score: 1300(Quants: 750, Verbal: 550), Analytical Writing: 3.5

TOEFL Score: 105(Reading: 24, Listening: 26, Speaking: 28, Writing: 27)

Position of Responsibility Held

July,2011-Nov,2011 **Teaching Assistant:** I am currently holding the Teaching Assistant Position for the course CSL 101.

Jun,2011-July,2011 **Mentor in Computer Graphics Workshop:** I mentored a student's project in the Computer Graphics Workshop held by the Department of Computer Science and Engineering, IIT Delhi.

Other Interests

Numismatics,Reading books,PC Games