SAURABH KUMAR
MALE,22 YEARS
M.Sc.(Hons.) PHYSICS & B.E.(Hons.) COMPUTER SCIENCE (2012-2017) from **BITS PILANI, PILANI CAMPUS**
CGPA: 8.41

EDUCATION

CBSE (Class XII)	2011	Birla Sr. Sec. School ,Pilani	85%
BSEH (Class X)	2009	Kapil Vidya Mandir Sr. Sec. School,Mahendergarh	9.60/10

Relevant Courses : Object Oriented Programming, Data Structures and Algorithms, Machine Learning, Artificial Intelligence, Human Computer Interaction*, Data Mining*, Quantum Info. And Computing*, Database Systems, Statistics and Probability, Linear Algebra, Microprocessor and Interfacing, Computer Architecture, Operating System, Design and Analysis of Algorithms*, Compiler Construction*, Computer Networks*.
*To be completed by May 2016

INTERNSHIPS

Heidelberg Collaboratory for Image Processing, Heidelberg University, Germany **(May-July 2015)**
Under guidance of Dr. Daniel Kondermann and supervision of Dr. Rahul Nair

1.**Window Corner Detection**

- Implemented a machine learning algorithm to automatically detect the corners of windows in a video sequence. Results with **more than 98% accuracy** were obtained.
- Would be used for accurate depth maps generation.. (Based on paper "Stereo Ground Truth with Error Bars" by Daniel Kondermann, Rahul Nair, Stephan Meister, Wolfgang Mischler, Burkhard Güssefeld, Katrin Honauer, Sabine Hofmann, Claus Brenner, Bernd Jähne)

2. **Adaptive Block Matching Stereo**

- Implemented an algorithm which could automatically select the correct window size according to the texture of the image for block matching. Results show improved performance over the traditional fixed window size based stereo matching.

CSIR-Central Electronics Engineering Research Institute Pilani, India under guidance of Dr. J.L Raheja (Chief Scientist, Machine Vision Group) **(May-July 2014)**

Real-time 3D Segmentation`

- We a group of three students implemented a real-time algorithm that segmented unstructured scenes. The algorithm robustly separated objects of unknown shape in congested scenes of stacked and occluded objects. Based on paper "Realtime 3D Segmentation for Human-Robot Interaction" by Andre Uckermann, Robert Haschke and Helge Ritter
    - My role in the team was to preprocess images and to mark different surfaces in the image (depth map) using connected component algorithm.

ACADEMIC PROJECTS

- **Automatic Text summary**: Implemented **TextRank algorithm** to create an automatic text summarization tool using **python** and **nltk**.
- **Document Classification** using **Stream based Active Learning**: Implemented a stream based active learning algorithm in python to create a binary document classifier. Results with 91% accuracy were achieved.
- **Molecular Dynamics Simulation of ideal gas**: Implemented a **Verlet algorithm** in **C** to simulate behavior of ideal gas in a two dimension box with circular boundary conditions imposed.

Skill Set

Programming Languages: C(Proficient), C++(Intermediate), Java(Intermediate), Python(Intermediate).
Database Query Language: SQL(Intermediate).
IDEs/Software: Microsoft Visual Studio, Eclipse, Oracle SQL Developer
Operating Systems: Linux, Windows

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