BEENA KUMARI

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RESEARCH INTEREST

- Scientific and Information Visualization
- Image Processing

DEMO PAPER, TECHNICAL REPORT

- **B. Kumari**, A. Ashe, and J. Sreevalsan-Nair, " Remote Interactive Visualization of Parallel Implementation of Structural Feature Extraction of Three-dimensional Lidar Point Cloud" accepted as Demo Paper in Third International Conference on Big Data Analytics (BDA 2014), Delhi, India,
- **B. Kumari**, and J. Sreevalsan-Nair, "Three-dimensional Visualization of LiDAR Point Cloud Using Structural Feature Extraction," in Proceedings of NSDI (National Spatial Data Infrastructure) 2013 and Poster presentation

EMPLOYMENT

IIIT-B (April 2013 – Present)   **Junior Research Fellow**
  Working on visualization of 3-D LIDAR data-sets

Larsen & Toubro IES, Mysore (Feb 2011 – March 2013)   **Software Engineer**
  Developed image processing algorithms with MATLAB 7.5/OpenCV/OpenGL

EDUCATION

MS by Research in Scientific Visualization (2013-Present)
  International Institute of Information Technology Bangalore
B.Tech in Electronics & Communication Engineering (2006-2010)   **CGPA: 7.84/10**
  Shri Mata Vaishno Devi University, J&K
Class XII (2005) C.B.S.E   **Percentage: 74%**
Class X (2003) A.I.C.T.E   **Percentage: 78%**

SKILL SET

Desktop Application Languages	C, C++
Framework/Libraries	OpenCV, OpenGL, CUDA, PCL
Operating Systems	Windows, Linux
Tools/Software	MATLAB 7.5, QT, FLTK, Visual Studio 2010 Professional, MS Office

PROJECTS

1. **3-Dimensional Visualization of LIDAR data-sets** (April 2013 - Present)
    Technologies: C++, OpenGL, MATLAB 7.5, FLTK
    Description:A user-driven visualization system to explore and analyze LIDAR data sets available from institutional geological regions such as 3D campus GIS.
    Responsibilities:
    - Develop an application framework.
    - Implementation of algorithms to visualize the large-scale LIDAR data-sets.

2. **Ultrasound Scanner** (Oct 2012 - Mar 2013)
    Technologies: C++, OpenCV, MATLAB 7.5, OpenGL
    Description: An ultrasound machine where user can scan the organs and perform B-mode imaging.
    Responsibilities:

- Implemented the loader to load .hex file into cypress USB controller and .bin file into FPGA.
- Involved in designing and implementation of protocols for USB 2.0 communication.

3. **Digital Image Analysis for Quantitative Pathology** (Jul 2012 - Mar 2013)
   Technologies: C++, OpenCV, MATLAB 7.5
   Description: An application where pathologists can perform automated quantitative IHC analysis for breast tissues and generate an IHC report.
   Responsibilities:
   - Understand the specific requirements of the project.
   - Involved in Design, analysis and Feasibility study of the project.

4. **Extended Depth of Field and 3D Reconstruction of Microscopic Objects** (Mar 2012 - Jun 2012)
   Technologies: C++, MATLAB 7.5, OpenCV, OpenGL, QT
   Description: An aplication which can generate the extended depth of field and montage from a stack of images taken from optical microscope and create its 3D model.
   Responsibilities:
   - Developed focus measure algorithm.
   - Handled memory leaks.

5. **Portable UltraSound Imaging on Android** (Oct 2011 - Feb 2012)
   Technologies : Android JAVA, OpenGL ES, C++, OpenCV, OpenGL, MATLAB 7.5
   Description: An android application in which user can load post RF demodulated data taken from any ultrasound probe and can do quick ultrasound diagnosis. It has two modes only: B-mode and Color Flow Doppler mode.
   Responsibilities:
   - Understand the specific requirements of the project.
   - Implemented ultrasound image formation algorithm for B-mode in MATLAB/OpenCV.
   - Implemented scan conversion algorithm for B-mode and Doppler mode using OpenGL.
   - Developed speckle reduction algorithm in MATLAB/OpenCV.

6. **Moving Object detection, Tracking and Classification** (Jun 2011 - Sep 2011)
   Technologies: C++, MATLAB 7.5, OpenCV, QT
   Description: An application to detect, track and classify moving objects into human and non-humann in live video.
   Responsibilities:
   - Understand the specific requirements of the project.
   - Developed moving objects detection and tracking algorithm in OpenCV/MATLAB.

ACADEMIC Project

Surveillance Camera System Using FPGA (Sep 2009 to Apr 2010)
Technologies: VHDL
Description: it is a surveillance camera system built using the motion detector and FPGA. It will start capturing as well as storing the video as the person pass through the motion detector and display it on the VGA.
Responsibilities:
- Implemented I2C communication protocol on FPGA
- **Implemented VGA controller on FPGA.**