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My Blog
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Ameya Joshi

Education

2010–2014 **Bachelor of Engineering (Hons.), Electrical and Electronics Engineering**, *Birla Institute of Technology and Science, Pilani*, Goa, *GPA – 7.98*.

Experience

June 2014 – Present **Computer Vision Engineer**, Ducere Technologies, Hyderabad, India.
Computer Vision and Embedded Firmware Programmer
Detailed achievements:
- Worked on LeChal, the flagship product aimed at providing navigational cues to the visually impaired
- Implemented a system for image acquisition and processing with Omnivision OV2640 on STM32F4 ARM platform for image acquisition
- Designed and implemented the firmware architecture for a variant of the product on STM32L0 Platform.

Jun 2014 – Dec 2014 **Computer Vision Intern**, Ducere Technologies, Hyderabad, India.
Worked on designing obstacle avoidance systems for the blind
Detailed achievements:
- Designed and implemented a prototype for a computer vision system for obstacle avoidance using stereo-vision and saliency modelling.
- Designed and implemented a Tesseract OCR based document analysis module for a prototype
- Developed a project for No-ball detection (Cricket) to work with a single camera using motion heuristics

Jan 2013 – May 2013 **Student Instructor, Computer Vision**, CTE, BITS Goa, Goa.
Instructor for Computer Vision, a vocational course for somphomores and juniors
Detailed achievements:
- Designed and taught computer vision course to a class of juniors and sophomores.
- Examples were created in OpenCV to illustrate Feature Extraction, Machine Learning, Background Subtraction and Object Localization.

Publications

ACM SIGGRAPH 2014 **Selective Visualization of Anomalies in Fundus Images via Sparse and Low Rank Decomposition**.
A. Mahurkar, ***A. Joshi****, N. Nallapareddy, P. Reddy,A. Kadambi, M. Feigin, R. Raskar*

Projects

Jan 2014 – Jun 2014 **Selective Visualization of Anomalies in Fundus Images via Sparse and Low Rank Decomposition**, In association with MIT Media Labs.
- Worked on segmenting and enhancing anomalous lesions in retinal fundus images using rank and sparsity.
- Results were published as a poster in SIGGRAPH-2014

Mar 2013 – May 2014 **Leaf Recognition**, BITS Goa, Advisor: Dr. Meenal Kowshik.
- A Leaf recognition Algorithm based on feature clustering and bag of words
- It was further expanded using developed VLAD and Fisher Vector modules
- Net accuracy obtained on the Flavia Dataset is 93.6% which is comparable to state of the art methods using handcrafted features

Oct 2012 – Dec 2012 **Segmentation and Recognition of Electronic Circuit Symbols in images**, BITS Goa.
- Developed an algorithm to segment and recognise circuit symbols from natural images.
- Used OpenCV for bag of words and the OpenCV wrapper for libsvm

Oct 2012 – Dec 2012 **Study and Implementation of Ant Colony Algorithms**, BITS Goa, Advisor: Dr. Sangeeta Jaiswal.
- The project deals with the studying and implementing the properties and variations of Ant Colony Algorithms.
- Implemented various flavors of ACO using C++ Standard Template Libary and Python for visualization.

Oct 2011 – Dec 2012 **Virtual Canvas: A Hand Tracking System using Background Subtraction and Color Predicates**, BITS Goa.
- Developed a system to track a user's hand using a laptop web-cam for drawing on the screen.
- Implemented background subtraction and trained a color model for hand detection and tracking in OpenCV.

Awards

2010-2014 Awardee of the BITS Merit-cum-Need Scholarship

2009 National Talent Search Scholar, one of the top 500 students selected as a science scholar

Skills

Languages C/C++, Python, MATLAB, LaTeX

Packages and Tools

Libraries OpenCV,STL C++, SimpleCV, scikit-learn

Embedded Platforms STM32 ARM Cortex (M0+, M3, M4F), EFM32 (ARM Cortex M0+, M3), AVR Atmega

DSP Platforms DSK 6713

Tools IAR for ARM, Keil, gdb