

# 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

Mar 2015 – **Member of Technical Staff, TONBO IMAGING PVT. LTD., Bengaluru, India.**

Present Computer Vision and Embedded Linux Firmware Programmer

Detailed achievements:

- Worked on Linux based systems for video surveillance systems for defence applications
- Experience in ubl, uboot and linux kernel customization, device driver development and debugging
- Experience in porting video applications and algorithms for embedded platforms like TI DaVinci platforms
- Designed, developed and maintained applications for various product lines

June 2014 – **Computer Vision Engineer, DUCERE TECHNOLOGIES, Hyderabad, India.**

Mar 2015 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 **Selective Visualization of Anomalies in Fundus Images via Sparse and Low Rank**  
SIGGRAPH **Decomposition.**

2014 *A. Mahurkar, A. Joshi, N. Nallapareddy, P. Reddy, A. Kadambi, M. Feigin, R. Raskar*

## Projects

Jan 2014 – **Selective Visualization of Anomalies in Fundus Images via Sparse and Low Rank Decom-**  
Jun 2014 **position, 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 – **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 – **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 – **Study and Implementation of Ant Colony Algorithms, BITS GOA, Advisor: Dr. Sangeeta**  
Dec 2012 **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 Library and Python for visualization.

- Oct 2011 – **Virtual Canvas: A Hand Tracking System using Background Subtraction and Color Prediction**, 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.

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## 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

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## Skills

Languages C/C++, Python, MATLAB,  $\text{\LaTeX}$

Packages and Tools

Libraries libv4l2, OpenCV, STL C++, SimpleCV, scikit-learn

Embedded TI DM365, TI DM8168, STM32 ARM Cortex (M0+, M3, M4F), EFM32 (ARM Cortex M0+, M3),

Platforms AVR Atmega

DSP Platforms DSK 6713

Tools IAR for ARM, Keil, gdb, kgdb