

## Avijit Dasgupta

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### RESEARCH INTERESTS

Computer vision and machine learning with focus on object detection (especially people) and tracking  
Deep Learning architecture to solve visual recognition problems

### EDUCATION

**St. Thomas' College of Engineering and Technology**, India      2009 - 2013  
*B.Tech. in Electronics and Communication Engineering*      DGPA: 8.37/10

### RESEARCH PROJECTS

**Deep learning based 3D Segmentation of anatomical structure from Chest CT Images**      April, 2015 - Present

Indian Institute of Technology, Kharagpur, India

- Developing a deep learning based algorithm for automatic segmentation of anatomies from chest CT images.
- Tools Used: Python, Theano, Lasagne, OpenCV, Dicomworks

**Visual Recognition from Unconstrained YouTube Videos**      2014 - Present  
Independent Research Project

- Developing a unified *Boosting* framework to address the problem of detection, recognition and tracking people in youtube videos.
- Tools Used: MATLAB, OpenCV
- Collaborator: Sujoy K. Biswas, University of California, Santa Cruz

**Assistive Vision Simulator**      July 2015  
REDX workshop, MIT's Health Technology Camp, Hyderabad, India

- Developed a head mounted device with auditory and haptic feedback to help visually impaired patients to navigate without using any external aid.
- Tools Used: Python, Unity3D
- Instruments Used: Oculus Rift
- Instructors: Prof. Ramesh Raskar, Tristan Swedish, MIT Media Lab

**Early Detection of Oral Cancer from Infrared Images**      Jul, 2014 - Dec, 2014  
Indian Institute of Technology, Kharagpur, India

- Prepared a database of oral cancer signatures using an infrared camera and developed a prototype of early detection of oral cancer using this set of thermal images.
- Tools Used: MATLAB, FLIR Tools, FLIR ResearchIR
- Instrument Used: FLIR T650sc long wavelength infrared camera

**Construction of Filters for Adaptive Image Enhancement**      Summer 2012  
Indian Statistical Institute, Kolkata, India

- Developed the physiologically inspired *Adaptive Difference of Gaussian (ADoG)* filter which uses the intensity information as well as the color information to smooth a noisy image while preserving the significant details of it.

- Tools Used: MATLAB

## PUBLICATIONS

M. Chakraborty, S. Mukhopadhyay, **A. Dasgupta**, S. Patsa and J. Ray, *A New Approach of Oral Cancer Detection using Bilateral Texture Features in Digital Infrared Thermal Images*, IEEE Engineering in Medicine and Biology Conference (EMBC), IEEE, 2016. (Accepted)

**Avijit Dasgupta**, Sudipta Mukhopadhyay, Shrikant A. Mehre and Parthasarathi Bhattacharyya, *Morphological Geodesic Active Contour based Automatic Aorta Segmentation in Thoracic CT Images*, International Conference on Computer Vision and Image Processing, Springer, 2016.

M. Chakraborty, S. Mukhopadhyay, **A. Dasgupta**, S. Banerjee, S. Mukhopadhyay, S. Patsa, J. Ray and K. Chaudhuri, *A new paradigm of oral cancer detection using digital infrared thermal imaging*, SPIE Medical Imaging, San Diego, 2016.

**Avijit Dasgupta**, Sujoy Kumar Biswas and Peyman Milanfar, *Visual Recognition for Soccer Analytics: Player Detection, Team Recognition and Re-identification in Unconstrained YouTube Videos* (under review)

**Avijit Dasgupta**, Asish Bakshi and Kuntal Ghosh, *Lateral Inhibition based Holistic Approach to Adaptive Image Enhancement*, 3rd International Advanced Computing Conference (IACC), IEEE, 2013

## WORK EXPERIENCE

- **Junior Research Fellow** July, 2014 - Present  
Indian Institute of Technology, Kharagpur, India
- **System Engineer** February, 2014 - April, 2014  
Infosys Limited, Bhubaneswar, India
- **System Engineer Trainee** October, 2013 - February, 2014  
Infosys Limited, Mysore, India
- **Part-time Research Assistant** June, 2012 - July, 2013  
Machine Intelligence Unit, Indian Statistical Institute, Kolkata, India

## AWARDS AND HONORS

Awarded **Junior Research Fellowship** from Ministry of Human Resource Development (MHRD)  
Reviewer of ICAPR 2015 conference and Infrared Physics and Technology journal

## SKILL SET

- Programming Languages: C, C++, Java, Python
- Tools:  $\text{\LaTeX}$ , Eclipse, Git, Bitbucket, MATLAB, Weka, FLIR Tools, FLIR ResearchIR
- Toolboxes: CVX, OpenCV, Piotr Dollar's Toolbox, VIFeat, GML Adaboost Matlab Toolbox, Caffe, MatConvNet, Theano, Lasagne, Keras
- Operating Systems: Linux, Windows, Android
- Others: Android programming

## ACHIEVEMENTS

**1<sup>st</sup>** position in robotics event Robo Rush in SREY 2012 held at St. Thomas' College of Engineering and Technology, Kolkata, India

## REFERENCES

Available upon request