

Jasmine Bhanushali

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SUMMARY OF SKILLS

Graduate student at UC Irvine specializing in the area of **computer vision** and **image processing**.

Technologies: OpenCV C++ MATLAB **Major Courses:** Digital Image Processing, Computer Vision
ITK Python C Machine Learning, Visual Computing

EDUCATION

University of California, Irvine - *Master of Science in Computer Science*

Sep 2016 - Dec 2017

International Institute of Information Technology, Hyderabad - *Bachelor's of Technology in Electronics and Telecommunication engineering*

Aug 2011 - Aug 2015

EXPERIENCE

Clear Guide Medical, Baltimore, USA - *Medical Image Segmentation Intern*

May 2016 - Aug 2016

- ❑ Played a crucial role in developing the MRI modality for the CT-ultrasound fusion system.
- ❑ Developed a method to segment translucent markers from a video stream using OpenCV.
 - ❑ Identified the positions of markers in both the camera images and determined their correspondence.
 - ❑ Did the stereo reconstruction to compute their 3-D locations and visualized the result using VTK.
- ❑ Implemented state of the art algorithms to segment markers from CT, CBCT and MRI volumes using ITK

Smarttrak Solar Systems, Hyderabad, India - *Embedded Engineer*

June 2015 - April 2016

- ❑ Set up the hardware and software for wireless communication in large plants and reduced the cost by 80%
- ❑ Was selected to represent the company at the IEEE Power and Energy Society 2015 Conference at Denver

International Institute of Information Technology, Hyderabad - *Head Teaching Assistant*

Jan 2015 - April 2015

- ❑ Managed 11 Teaching Assistants to effectively handle 200 freshman students for the Basic Electronics course.
- ❑ Conducted tutorials, graded exams and ensured that the tutorials and labs were carried out properly.

PROJECTS

❑ Protein Secondary Structure Prediction using Neural Network

Used convolutional neural network to predict the structure of the protein based on the sequence of amino acids. Interpreted the sequence as an image to improve the accuracy of prediction. Evaluated and tested different approaches to optimize the result of the prediction. This was implemented using Tensor Flow.

❑ Eyeglass Removal from photos

Removed eyeglasses from an image by reconstructing the image using eigen faces. The reconstructed and original image were used to extract the eyeglass region and to change the pixel values. The eigen reconstruction was done recursively to improve the results.

❑ Registration of CT and X-Ray for localization during procedure

Determined the orientation of the X-Ray taken during the procedure by registering it with the digitally reconstructed radiograph (DRR) from the preoperative CT scan. The angle of projection of CT to generate the DRR was optimized until a valid registration with the X-Ray was achieved.

❑ Camera Calibration for Arbitrary Pattern

Computed the camera calibration matrices using known 3-D points and camera images from different views. The fundamental matrix between different camera views was also computed. This was then used to compute the 3-D location of points on a single object in different sets of images to generate a mesh of points representing the object.

PUBLICATIONS

A Dome-Shaped Interface Embedded with Low-Cost Infrared Sensors for Car-Game Control by Gesture Recognition, *Human Computer Interaction Conference 2015, Los Angeles*, Jasmine Bhanushali, Sai Parthasarathy Miduthuri, Kavita Vemuri

- ❑ Developed a **3-D gesture recognition device to identify hand movements**.
- ❑ Created a prototype that used a height-mapped surface generated using proximity sensors to track hand movements.
- ❑ Overcame the challenge of identifying incomplete gestures by training a Hidden Markov Model to observe time-varying motions and matched them to state sequences representing previously modeled gestures.
- ❑ The device had the unique feature of identifying turning and twisting gestures.