# Sai Parthasarathy Miduthuri

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## Education

**Stony Brook University** — **Stony Brook, New York**
*Masters in Computer Science, GPA - 3.76/4.00* — *Aug 2017 - Dec 2018*

**IIIT-Hyderabad** — **Hyderabad, India**
*B.Tech Electronics and Communication Engineering* — *Aug 2011 - Apr 2015*

## Work Experience

**Tonbo Imaging** — **Bangalore, India**
*Engineer, FPGA and Embedded Software Development* — *May 2015–June 2017*

- Developed adaptive video contrast enhancement using VHDL for use in cooled thermal imaging systems
- Created bad pixel identification algorithm to find bad pixels in MWIR video with 99% accuracy without manual intervention
- Designed embedded linux kernel module to process serial communication data for intra-system communication
- Devised video streaming software for high-FPS video over Ethernet, improving maximum throughput by 50% over existing implementation, and reducing frame drops to 2%

## Projects

- **Algorand Implementation using DistAlgo** - *Course Project in Asynchronous Systems, Nov 2018*
  Implemented the Algorand byzantine fault tolerant distributed ledger design, as part of a 3-member team. Simulated growth of the block chain with byzantine faults injected, verified algorithmic correctness, and evaluated performance with respect to parameters such as no. of traitors, block size, etc.
- **Frame Recurrent Video Super Resolution using Tensorflow** - *Independent Study, Jul-Aug 2018*
  Implemented the FRVSR design, developed by Sajjadi et. al., 2017, using Tensorflow, and trained multiple variants of the model as part of experimental project to improve SSIM of super-resolved video.
- **Reading Comprehension for Question Answering** - *Course Project in Natural Language Processing, Apr 2018*
  Extended the Bidirectional LSTM-based DrQA model on PyTorch, developed by Chen et. al., 2017, to answer open-ended Multiple Choice Questions in the MovieQA Dataset based on reading movie plot synopses. Improved model accuracy by 11% compared to naive QA without considering choices using the base DrQA model.
- **Video Stabilization Through Time-Series Registration** - *Course Project in Medical Image Processing, April 2015*
  Implemented time-series registration of microscopic iris video frames to stabilize video and observe flow of leukocytes in the iris. Used probability-mesh based deformations to register frames with least possible visual distortion and drift error.
- **Image Segmentation Using Active Contour Models** - *Course Project in Medical Image Processing, March 2015*
  Implemented multiple variants of Snakes Active Contour Models in order to understand basics of contour-based image segmentation. Evaluated their performance upon different types of datasets by running these algorithms with various contour movement forces.
- **3D Mapping Interface Using Proximity Sensors** - *B.Tech. Project, January 2014 to March 2015*
  Created a touch-less interface using IR sensors to generate a height mapped surface and devise a multi-purpose game controller. Designed a prototype using an HMM-based gesture recognition system with 88% accuracy.

## Technical Skills

PROGRAMMING LANGUAGES C (Proficient), C++ (Basic), C# (Basic), Python (Proficient), TLA+ (Basic)
TOOLS TensorFlow, PyTorch, MATLAB, OpenCV, ITK, Git, DistAlgo

## Publications

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

## Academic Achievements

- Research Award for research performed in Bachelor's Course, at IIIT Hyderabad
- Dean's Merit List Award for academic excellence in Bachelor's Course, at IIIT Hyderabad