

PAVAN CHENNAGIRI

The University of Texas at Austin

CONTACT INFORMATION	Laboratory for Image and Video Engineering, Engineering and Education Research Building, 2501 Speedway, Austin, TX- 78712	<i>Email</i> : pavancm@utexas.edu <i>Phone</i> : +1 5129440149 https://pavancm.github.io
RESEARCH INTERESTS	Image and Video Processing, Computer Vision, Machine Learning	
EDUCATION	The University of Texas at Austin	Aug 2018 - Present
	<i>Doctor of Philosophy in Electrical and Computer Engineering</i>	
	<ul style="list-style-type: none">• Advisor : Professor Alan C. Bovik• Title : High Frame Rate and Perception• Relevant Courses : Large Scale Optimization, Genomic Signal Processing, Vision Systems, Regression Analysis	
	Indian Institute of Science, Bangalore	Aug 2016 - June 2018
	<i>Master of Technology (Research) in Electrical Communication Engineering</i>	
	<ul style="list-style-type: none">• Advisor : Dr. Rajiv Soundarajan• Thesis : Quality Assessment of Stitched Images for Virtual Reality• Relevant Courses : Random Process, Information Theory, Machine Learning, Computer Vision, Advanced Image Processing, Digital Video and Perception	
	National Institute of Technology, Karnataka, Surathkal	July 2012 - May 2016
	<i>Bachelor of Technology in Electronics and Communication Engineering</i>	
	Class Rank - 3 out of 106 Students	GPA - 9.6/10
	<ul style="list-style-type: none">• Advisor : Dr. Deepu Vijayasanen• Thesis : Video Magnification for non-intrusive heart monitoring	
WORK EXPERIENCE	Google, Mountain View, CA	May 2019 - August 2019
	<i>Research Intern, Media Algorithms Team, YouTube</i>	<i>Mentor : Dr. Mohammad Izadi</i>
	Project Title : Real time video denoising for YouTube videos	
	<ul style="list-style-type: none">• Designed real-time video denoising algorithms for user uploaded videos in YouTube. The proposed method had superior processing speed than the existing denoiser• The method was employed for YouTube TV and LIVE videos	
RESEARCH EXPERIENCE	High Frame Rate Videos - perceptual quality assessment	Aug 2018 - Present
	<i>Advisor: Prof Alan C Bovik, Electrical and Computer Engineering, UT Austin</i>	
	<ul style="list-style-type: none">• Working on modeling quality of videos as a function of frame rate, compression level and resolution as well as video content• A dataset of 480 videos consisting 6 different frame rates and 5 compression levels was constructed. A subjective study was conducted to obtain subjective quality scores.	

Quality Assessment of Stitched Images

Aug 2016 - June 2018

Advisor: Dr.Rajiv Soundararajan, Electrical Communication Engineering, IISc Bangalore

- Developed an automatic quality assessment algorithm for panoramic images suffering from distortions introduced during the stitching process. Algorithm employed Support Vector Machines (SVM) to learn the mapping between features and quality scores.
- Constructed a panoramic image database by employing popular stitching algorithms and a subjective study was conducted to evaluate this dataset to obtain subjective ratings.
- The scores from the developed algorithm correlated very well with human scores obtained during subjective study resulting in state of the art performance.

Heart Rate Monitoring during physical exercise using wrist type Photoplethysmographic (PPG) signals

December 2014

Advisor : Dr.Prasanta Kumar Ghosh, Electrical Engineering, IISc Bangalore

- Part of the team which worked to develop an algorithm to get accurate heart rate values from wearable PPG signals while performing physical exercises. Project undertaken as a part of Signal Processing Cup - 2015 conducted by Signal Processing Society, IEEE
- The team was placed 4th globally and the results were published in Signal Processing Letters

PUBLICATIONS

- **Pavan C. Madhusudana** and Rajiv Soundararajan. "Subjective and Objective Quality Assessment of Stitched Images for Virtual Reality," *IEEE Transactions in Image Processing*, vol. 28, no. 11, pp. 5620-5635, Nov. 2019.
- Navaneet K. Lakshminarasimha, **Pavan C. Madhusudana**, Pradyumna Suresha, Vijitha Periyasamy, and Prasanta Kumar Ghosh. "Multiple spectral peak tracking for heart rate monitoring from photoplethysmography signal during intensive physical exercise." *IEEE Signal Processing Letters*, December 2015.

SKILLS

- Programming: C, Python, Embedded C, Java
- Scientific: MATLAB, OpenCV, Caffe, Theano, Keras, Tensorflow, Halide, L^AT_EX

LEADERSHIP SKILLS

- *Electrical and Electronics Committee* - core committee member - incharge of electronics events during Engineer - 2015 (Annual technical festival of NITK Surathkal).
- *IEEE NITK Chapter* - executive member of IEEE NITK student chapter.

ACHIEVEMENTS

- Finalist (selected amongst 54 teams across India) in **Qualcomm Innovation Fellowship, India 2017**
- Member of the team which secured 4th position globally in **Signal Processing Cup 2015** conducted by IEEE Signal Processing Society
- Selected in the **Regional Mathematics Olympiad (RMO)** from Karnataka state conducted by Indian Statistical Institute (ISI) Bangalore, during 2011 and 2012.
- Secured *All India rank of 785* (amongst 1,200,000 candidates) in All India Engineering Entrance Examination (AIEEE) 2012.
- Recipient of Ministry of Human Resources Development Scholarship for being ranked in top 0.1% of AIEEE (2012 - 2016)
- *Ranked 30* (Top 0.1% amongst 150,000 candidates) in State level Engineering Entrance Exam.
- Secured 1st position in the Karnataka State Class X Secondary Examination (SSLC) in 2010.