

Vishwanath Sindagi

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Summary

- Current Role** Pursuing Ph.D in ECE dept. (computer vision and machine learning) at Rutgers University.
- Experience** Over 6 years of industry experience involving R&D of computer vision/computational photography.
- Research Interests** Computer vision and machine learning with a specific focus on small object detection, face detection, crowd analytics, domain adaptation, low-level vision and applications of generative modeling.

Education

- 2016–Now **Rutgers University**.
Ph.D in Electrical and Computer Engineering (Current GPA: 4.0/4.0)
Advisor: Prof. Vishal M. Patel
- 2007–2009 **International Institute of Information Technology Bangalore (IIIT-B)**.
M Tech in Information Technology (GPA: 3.42/4.0)

Experience

- Aug 2016–
–Now **Rutgers University, Piscataway, NJ (Graduate Research Assistant)**.
Research on computer vision and machine learning with a specific focus on deep learning and small object detection, face detection in the crowd, cnn-based crowd analytics, applications of generative modeling (GANs) and low-level vision.
- Dec 2012–
–July 2015 **Samsung R&D Institute Bangalore (SRIB), Bangalore, India (Chief Engineer)**.
Development of products related to computational photography, video analytics, machine vision and gpu computing.
- Jul 2009–
–Nov 2012 **AllGoVision, Bangalore, India (Sr. Software Engineer)**.
Development of products related to video analytics, video surveillance and object detection.

Publications & Patents

- Conference** **V.A. Sindagi** and V.M. Patel, "Generating High-Quality Crowd Density Maps using Contextual Pyramid CNNs". *IEEE International Conference on Computer Vision (ICCV)* 2017.
V.A. Sindagi and V.M. Patel, "CNN-based Cascaded Multi-task Learning of High-level Prior and Density Estimation for Crowd Counting". *IEEE International Conference on Advanced Video and Signal-based Surveillance (AVSS)* 2017 [**Best paper award**].
V.A. Sindagi and S. Srivastava, "OLED Panel Defect Detection Using Local Inlier-Outlier Ratios and Modified LBP". *IAPR International Conference on Machine Vision Applications (MVA)* 2015 .
- Journal** **V.A. Sindagi** and V.M. Patel, "A Survey of Recent Advances in CNN-based Single Image Crowd Counting and Density Estimation". *Pattern Recognition Letters (PRL)*, *accepted for publication*, July 2017.
V.A. Sindagi and S. Srivastava, "Domain Adaptation for Automatic OLED Panel Defect Detection Using Adaptive Support Vector Data Description". *International Journal of Computer Vision (IJCV)*, 2017.
- Pre-prints** L. Wang, **V.A. Sindagi** and V.M. Patel, "High-Quality Facial Photo-Sketch Synthesis Using Multi-Adversarial Networks". *Under review* 2017.
X. Di, **V.A. Sindagi** and V.M. Patel, "GP-GAN: Gender Preserving GAN for Synthesizing Faces from Landmarks". *Under review* 2017.
H. Zhang, **V.A. Sindagi** and V.M. Patel, "Joint Transmission Map Estimation and Dehazing using Deep Networks". *Under review* 2017.
H. Zhang, **V.A. Sindagi** and V.M. Patel, "Image De-raining Using a Conditional Generative Adversarial Network". *Under review* 2017.

Patents "Method and system for enhancing human skin in media". *Submitted to Indian Patent Office (ref no: 2424/CHE/2015).*
"Method and apparatus to count predefined objects using video analysis". *Submitted to Indian Patent Office (ref no: 4381/CHE/2011).*

Industry Experience (Project profile)

- Samsung R&D
- Automatic fast event detection for slow video playback.
 - Intelligent scene framing for camera application using salient object detection.
 - Low light photography: Image enhancement method via blur and noisy image fusion.
 - Machine vision: OLED panel defect detection using hand engineered features and SVM.
 - Image set summarization using Bag of Visual Words (BoVW) and k-means clustering.
 - Object tracking using TLD (Tracking, Learning and Detection), MIL (Multiple Instance Learning) and CMT (Consensus based Matching and Tracking of objects).
 - Scene recognition using Bag of Visual Words (BoVW) and spatial pyramid kernel.
 - GPU optimization of video surveillance algorithms (background subtraction using NPMD and mixture of gaussians, video stabilization using optical flow, RANSAC homography).
- AllGoVision
- Coffee cup detection and counting using HOG features and SVM for a retail giant (patent application submitted).
 - Video/image stitching using SURF features and RANSAC homography.
 - Behavioral analytics: detection of loitering, wrong-way, illegal parking, camera tampering and left baggage.
 - Background subtraction using mixture of Gaussians and its adaption to large changes in illumination.
 - Parts based object tracking using mean-shift algorithm.

Technical strengths

Research small object detection, face detection, deep generative modeling, CNN-based crowd analytics, visual recognition, domain adaptation.

Interests

Programming C, C++, CUDA, Lua, Matlab, Python, R

Languages

Deep Learning Torch, PyTorch, Caffe

Frameworks