

SHRUTHI NARASIMHE GOWDA

sngowda42@gmail.com

(+91) 7829513370

Webpage: shruthi-gowda.info

GitHub: <https://github.com/shruum>

PROFILE

Senior Software Engineer with 5+ years of experience in Researching, Developing and Shipping products in Computer Vision, Machine Learning, Deep Learning and Embedded Software.

TECHNICAL SKILLS

Digital Image Processing, Computer Vision, 3D Vision, Machine Learning, Deep Learning

Deep Learning Libraries: TensorFlow, Caffe, Keras, OpenVINO, Intel DAAL

Programming Languages: C, C++, Python, LabVIEW, MATLAB

Software Optimizations: SSE, Intel CILK, Intel IPP, TBB (Multicore)

Open Source: OpenCV, OpenCL, PCL

Certifications: Machine Learning and Deep Learning courses on Coursera and DeepLearning.ai

Process: Agile, Scrum

EXPERIENCE

VISION R&D, National Instruments (NI), India – **Senior Software Engineer** [2018 - present]

Advanced Staff Software Engg [2017- present], Staff Software Engg [2015-2017], Software Engg[2013-2015]

Image and Signal Processing group (ISP), UCL, Belgium - Research Assistant [Jan 2012-Sep 2012]

EDUCATION

MS – Electrical and Computer Engineering [Sep 2010-Sep 2012] 8.5/10

Universitat Politècnica de Catalunya, Spain & Université Catholique de Louvain, Belgium

BE - Electronics and Communication Engineering [Jun 2006-Jun 2010] 86/100

B.M.S College of Engg, Visvesvaraya Tech. University (VTU), India

PROJECTS

Accelerated Deep Learning Inference [NI R&D] – Leading a project to develop a Deep Learning Optimized Inference Engine that can be used to deploy trained models on NI embedded hardware for classification and object detection applications. Integrated TensorFlow and OpenVINO libraries to provide framework to run models such as LeNet, AlexNet, VGG-16, SSD MobileNet on desktop Windows and embedded Linux targets.

Pattern Matching and Defect Map [NI R&D] - Developed a robust Pyramidal-based Pattern Matching feature using different features. Optimizations include Pyramid-level logic on the algorithm side and using IPP functions and multi-coring on the software side. This feature was used to calculate a pixel wise score to provide a thresholded defect map to accurately identify defects.

Barcode Localization, Decoding and Grading [NI R&D] - Researched, prototyped and productized 1D Barcode feature that localizes multiple barcodes using segmentation and then decodes and grades using ANSI Barcode standard. Barcodes Formats include Code25, Code39, Code128, EAN8, EAN13, Codabar, MSI and UPCA.

Object Tracking [NI R&D] - Researched, prototyped and productized tracking feature that uses Continuously Adaptive Mean Shift algorithm to track multiple objects across frames. Histogram Back Projection and Kalman Filter Prediction were added to improve results.

Virtual Viewpoint Reconstruction in a Multi-Camera Network [Master Thesis, UCL, Belgium]

The thesis proposes a method towards reconstruction of dynamic regions in a scene in any virtual viewpoint in a multi-view environment using Epipolar Geometry and View Interpolation. Color Camera Calibration was

implemented to learn the right camera parameters for multiple cameras.

MENTORING

Deep Learning research

Led a research project on using Deep Learning to experiment with different topologies for solving defect detection problems. Used multiple libraries such as Intel DAAL, TensorFlow and OpenVINO to experiment with faster training and inference performances on CPU.

Calibration System

Led an internship project on improving efficiency and usability while calibrating a Stereo Camera: Single Calibration Grid, Multiple Grids, no grids. Experiments using checkerboard instead of the existing DotGrid.

PUBLICATIONS [INTERNAL]

"Defect Detection using different Computer Vision Algorithms and Finding a Generalized Defect Inspection System using Deep Learning", NITech Conference 2016, NI R&D, Austin

"Analysis of Superpixels on existing Vision Algorithms", NITech Conference 2014, NI R&D, Austin

"Steganography in images using DWT and Skin Detection Biometrics", NITech 2013, NI R&D, Austin

AWARDS AND HONOURS

Engineering Excellence Award (2016) – In Recognition of excellent work and dedication in bringing out innovative ideas and products in NI R&D - by National Instruments, Austin, Texas

Rookie of The Year Award (2013) – In Recognition for the outstanding achievement and contribution of an employee to the company - by National Instruments, Austin, Texas

Erasmus Mundus Scholarship (2010-2012) – The most prestigious fellowship offered by European Union to 10 International Students every year; to study in consortia of universities across Europe

Pratibha Puraskar (2006) – Honor by the Indian Govt. for the top 0.1% of top scorers in Class 12