IMAMA NOOR

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Professional Interest:

Design, build, deploy Machine Learning applications to solve real-world problems empirically,
Work with any kind of practical data, including Image, Audio, Text, Video, Motion Capture & other high dimensional data.

EDUCATION:

2013 Ph.D, Image Processing, Department of Electrical and Computer Engineering, University of Memphis; Memphis TN. GPA 3.74

2007 M.Sc. Computer Engineering, Specialization in Signal Processing (evening classes) University of Engineering and Technology; Taxila, Pakistan. GPA 3.23

2004 M.Sc. Electronics
Quaid-i-Azam University; Islamabad, Pakistan. GPA 4.00

EXPERIENCE:

Research Engineer Nov 2013 – April 2016

Video Analytics Department, Avigilon USA, Greater Boston Area
Worked to improve existing framework and build new applications for surveillance camera for object detection, recognition and tracking.

- Build *SVM, CNN and LSTM* based models for detection, classification and reasoning. *Theano, Torch, Caffe, Python*

- Designed and implemented new learning algorithms to improve on existing learning algorithms for object detection, classification and tracking in surveillance videos. *C++, openCV, Adaboost, HOG, cascade classifier, decision stumps, Matlab*

- Developed custom feature, optimized for fast calculation with similar results compared to state of the art feature extraction algorithms. *Neon ARM optimization, QT, B-HOG, fixed point*

- Research latest developments, evaluate Benchmark datasets on proprietary algorithms *C++, openCV, Adaboost, HOG, cascade classifier,*

Developer Associate(volunteer) May 2013 – Sep 2013 TechStars – startup incubator Boston MA

Assisted in the development part of different projects based on image processing and computer vision.

- Extracting Receipt image from video – *C++, STL, openCV, Eclipse, Linux*
- Classify re-useable/damaged DVD based on reflected light magnitude – *C++, STL, Matlab, Eclipse, Linux, focal lens and detector*

Research Assistant Jan 2009 – Jan 2013 Department of Electrical and Computer Engineering University of Memphis, Memphis TN
Worked at Center for advance sensors with focus on compressive sensing for real time video imaging and taught /assisted Digital Image Processing and Random Signal Analysis.

Research Projects:

- Adaptive Sampling scheme for real time Video Acquisition and reconstruction Using a Single Pixel Camera – *Compressed Sensing, Motion Detection, BP Optimization, C++, STL, openCV, Multithreading, Linux,* 64x64 *DMD kit, focal lens, half-wave plate and single pixel detector*
- Compressive Sensing for a Sub-millimeter Wave Single Pixel Imager – *Compressed Sensing, BP - Optimization, C++, STL, Eclipse, Matlab, Single pixel detector, mirrors, spatial modulator.*
- Kalman Filter Compressed Sensing for tracking – *Compressed Sensing*, *SIFT, Kalman filter, Linux and Matlab*
- Gender Classification using opencv libraries – *C++, STL, opencv, Fisherfaces, Eclipse and Linux*
- 3D Joystick Operation in a Virtual Reality Environment – *C++, STL, Eclipse, opencv, Camera Calibration and SIFT, depth estimation, image registration*
- Medical X-ray image classification – *weka*, *Genetic algorithms and Matlab/Windows*
- 2D and 3D model for structured illumination microscopy – *PSF estimation, deconvolution and Matlab/Linux*
- Optimized measurement selection for a Sub-millimeter Wave single Pixel Imager – *Convex optimization, Matlab and Linux*

Embedded system Engineer Apr 2004 – Dec 2009 Embedded system Engineering Dep. NDT Pvt. Ltd. Islamabad, Pakistan Designed, implemented, and managed troubleshooting of modern wireless/wired thermostat and general purpose programmable logic circuits and developed complex micro-controller based control systems for various applications from building management system to robotics.

- Design and implementation of fast arithmetic and logic unit - *FPGA, VerilogHDL*
- Wireless and wired thermostat - *Motorola 68HC705p6 assembly and In-Circuit Emulator*
- Image capture using IP based Camera – *Windriver VxWorks, Tornado, Multithreading and Linux* - Packet sniffer on switched Local area network – *C++, STL, TCP/IP and socket programming*
- Implementation of *VoIP* services – *Asterisk, UDP and Windows*

TECHNICAL SKILLS:

Platforms: Linux (ubuntu/SunSolaris), VxWorks (RTOS), OSX and Windows
Languages: C/C++/C++ 11, SAS, R, Java, Motorola *68HC11* assembly, Intel Assembly *8051MC*

Soft Tools: Python2.7, MatlabR20xx, numpy, STL, OpenCV 2.x.x, Boost, QT, CUDA, Octave 3.4.2, Eclipse, MSVC 201x, LaTeX, Weka, Office 20xx, Tornado, SQL server, AutoCAD 2004, Verilog HDL, Simucad (Silos3) & VeriWell, Kiel, Texas (Programmer *68HC11*), XILINX , Proview32, PCAD, Protel, All 11 Programmers, Mapinfo, Pathloss 4.0, Ellipse, Pspice,

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ACHIEVEMENTS AND INVOLVEMENT: - Won $5000 in seed money at Pakathon Boston Sep 2013, Speaker at SPIE DSS 2011 Orlando, FL and 2012 Baltimore, MD, Reviewer, SPIE Optical Engineering & Electronic Imaging, IEEE Signal Processing, 1st Class 1st, Master of Electronics 2004, Quaid-i-Azam University, Merit Scholarship-Spring 2005- Fall 2005, Center of Advanced Studies for Engineering, Islamabad - Merit Scholarship - Fall 2002 and Spring 2003, Quaid-i-Azam University

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PUBLICATIONS:

- Imama Noor and Eddie Jacobs, “Adaptive Sampling scheme for real time Video Acquisition and reconstruction Using a Single Pixel Camera” SPIE Journal Electronic Imaging
- Imama Noor and Eddie Jacobs, “Adaptive Compressive Sampling Scheme for real time Video Capture and reconstruction Using a Single Pixel Camera” SPIE Compressive Sensing Proceedings Vol. 8023 Imama Noor, Orges Furxhi and Eddie Jacobs, “Compressive Sensing for a Sub-millimeter Wave single Pixel Imager” SPIE Passive Millimeter-Wave Imaging Technology XIV Proceedings

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REFERENCES: Provided on Request