Upender Kalwa

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3+ years of research experience and 2 years of professional IT experience in software development, actively looking for full-time opportunities. I am an Oracle certified Java Professional and PL/SQL Developer Associate. Passionate about research and highly committed to complete projects within deadlines.

EDUCATION

Ph.D. Electrical Engineering	Iowa State University, Ames, IA	**(GPA: 3.84/4.00)**	**expected Dec 2018**
M.E. Electrical Engineering	Iowa State University, Ames, IA	**(GPA: 3.86/4.00)**	**Aug 2017**
B.E. Electrical Engineering	JNTU, Hyderabad, India	**(GPA: 3.45/4.00)**	**May 2012**

COURSEWORK

Microelectronic Fabrication Techniques, Semiconductor Physics, Optoelectronic Devices and Applications, MEMS and BioMEMS, Introduction to Bioinformatics, Biosensors, Steganalysis and Digital Image Forensics, Intelligent Air Transport Systems, Wireless Sensor Networks, Introduction to Molecular Biology Techniques: Protein

SKILLS

Languages: Python, Matlab, R, Java, C/C++, Javascript, SQL, PL/SQL
Development tools: Eclipse, Android Studio, Xcode, Git
Computer Vision libraries: OpenCV, Tensorflow, Keras
Data Science tools: Spyder, PyCharm, RStudio, Jupyter
Design tools: Autodesk Eagle, Autodesk Inventor

Web Frameworks: Flask, Angular, ReactJS, Hugo
Mobile Frameworks: Ionic, Apache Cordova, React Native
Databases: Oracle DB, Mongo, MySQL
Technologies: J2EE, REST, SOAP

WORK EXPERIENCE

Graduate Research Assistant, Iowa State University **Jan 2015 – expected Dec 2018**

- ***Melanoma Detection***: Developed an Android application in Java to classify a mole image as benign or suspicious of melanoma taken using a camera in real-time using image processing and machine learning algorithms from OpenCV. It was tested on a public dataset and achieved results comparable to other research in the literature.
- ***Worm Tracker***: Developed software in Matlab to identify and analyze the behavior of nematodes (worms) exposed to different drugs placed under a microscope and in a microfluidic chip under a scanner.
- ***Pest Infestation estimator***: Developed software using deep learning to identify and detect nematode eggs from a soil sample placed under a scanner which is used to estimate the pest infestation for the next growing season. Used U-Net autoencoder architecture to segment the eggs and thereby establish the count.
- ***Soil Analysis Instrument***: Developed graphical user interface application using Flask for communicating with the instrument that extracts nematode cysts and eggs from soil performing multiple sieving operations.
- ***Animal health monitoring***: Designed PCB layout for an embedded board with multiple sensors to monitor animal health using Eagle. The firmware for the board is written in C using NRF5 SDK from Nordic Semiconductors and communicates with the sink node using BLE communication.
- ***Autofocusing system***: Built an autofocusing system for a microscope to monitor gene expression of bacteria using microfluidics using stepper motors, microcontroller, and control software written in Matlab.

Systems Engineer, Tata Consultancy Services, Hyderabad, India **Dec 2012 –Dec 2014**

- ***Handling migration issues***: Written PL/SQL scripts and Java programs to handle issues when billing module was migrated to Kenan FX within the deadlines.
- ***Performance improvements***: Automated daily order flow error fixes resulted from migration and new orders using PHP and PL/SQL saving the client approximately 20% of man-hours.
- ***Health Portal***: Developed a web application to display the health of all systems and database servers using LAMP stack.
- ***Backup Admin***: Performed admin activities for billing servers and diagnosed issues.

ACADEMIC PROJECTS

- ***Steganographic app***: Developed a mobile application using Ionic and Apache Cordova to embed text into an image taken by smartphone camera and recover the text from the steganographic image
- ***Blob Counter***: Used OpenCV to detect and count different colored blobs in a candy crush saga type desktop game application.