Pratik Patil

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ACCOMPLISHMENTS:

- Published a paper in International Journal of Advance Research in Computer and Communication Engineering on "Home Automation using ZigBee Protocol".
- Project manager awarded me "On the Spot" and "Star of the Quarter" for my performance during tenure in Tata Consultancy Services.

WORK EXPERIENCE:

MAHLE Behr USA Inc., Lockport, NY. (Engineering Intern)   May'18 – Present
- ✓ Design and developed test harness, test scripts and test cases for HVAC airflow model in MIL and SIL environment.
- ✓ Write software level Simulink model requirement. Developed scripts to analyze the data post HIL testing.
- ✓ Auto test case generation for unit Simulink models using Matlab scripts. Create almost 30000 test cases to test and validate functionality and working of models as per the requirement.

Technologies: Matlab / Simulink / Stateflow, Embedded Coder, Simulink Coder

Magna Steyr India Pvt. Ltd., (Associate Engineer)   Jan'17 – Jul'17
- ✓ Optimized the testing tools, to make it compatible with different version of programs. Got rid of tool version dependency.
- ✓ Successfully created .dll as per customer requirement from Simulink models using tool like RTW & Target Link to increase the testing cycle efficiency by 40%.
- ✓ Experience working on Transfer case control modules. Developed, analyzed and verified the transfer case algorithms (MBD), followed AUTOSAR guidelines during implementation.

Technologies: Matlab / Simulink / Stateflow, Python, C, PTC MKS Integrity (Version Control)

Tata Consultancy Services, (System Engineer)   Mar'14 – Dec'16
- ✓ **Ford Climate Control (Jun'2014-Dec'2016)**
  - Successfully created executable from Simulink models from scratch using RTW, automated the verification and validation cycle of FORD CLIMATE HMI (SYNC 2/ SYNC 3) to reduce integration testing cycle time by 83% and saved $3000/person per year.
  - Wrote supporting tools using m scripts, cmex, C, VBA and HTA to automate redundant task in agile process to increase efficiency by 30%.
  - Designed, developed and verified the HVAC algorithms using MATLAB, SIMULINK and STATEFLOW in MIL & SIL environment.
  - Auto test case generation (around 4000 test cases) from requirement of HVAC HMI unit module using VBA.

Technologies: Matlab / Simulink / Stateflow, C, C++, Qt, QML, CAN, SVN/SharePoint (Version Control)

EDUCATION:

Master of Science in Electrical Engineering   Expected May'19
State University of New York at Buffalo   GPA - 3.67
Bachelor of Engineering, Electronics and Telecommunication
Shivaji University, India   Percentage: 70% (Top 2%)

ACADEMIC PROJECTS:

Image Based Search Engine (Python, NumPy, OpenCV)   July'18
- Developed simple image search engine to give image results of various places on campus. Achieved accuracy from 80% to 100%.

Image disparity estimation and Image Segmentation (Python, NumPy, OpenCV)   June'18
- Predict distance of object from camera based on left and right camera image input based on depth maps. Create centered image if camera kept between left and right camera from previous depth maps.
- Performed image segmentation to locate objects and boundaries in image using mean shift algorithm.

Edge Detection and Histogram Equalization (Python, NumPy)   May'18
- Edge detection (Horizontal & Vertical) using Sobel filter and compared execution time between 2D and 1D convolution. Implemented generic algorithm for histogram equalization.

Digit recognition using Neural Networks (Python, NumPy, Tensorflow)   Mar'18- Apr'18
- Trained CNN on CelebA and MNIST dataset using tensor flow & achieved test accuracy of 79.3%. Designed single layer NN with forward and back propagation to compare results with deep NN. CNN gives best results with almost 99% accuracy.

Classify diabetic patients using regression techniques (Python, NumPy)   Feb'18
- Implement and trained LDA, QDA and Ridge regression classifiers on diabetes dataset with 64 features and compare accuracy among classifiers using MSE. As the data was linearly separable, linear and ridge regression gave lowest MSE.

Musical Instrument Recognition Using Harmonics (MATLAB)   Oct'17 – Dec'17
- Using Cepstral analysis implemented algorithm to characterize the individual note of different instruments.
- Studied the characteristics of flute and piano in reverse frequency domain, were able to identify unique notes of instrument.

TECHNICAL SKILLS:

Software Tools: Matlab / Simulink / Stateflow, SIMULINK CODER (RTW), TargetLink, PyCharm, Jupyter Notebook, CodeBlocks, Qt.
Programming Languages: C, Embedded C, Python 3(OpenCV), VBA, VBScript, C++, JavaScript, Shell Script and QML.