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
- Designed and developed test harness, auto test case generation scripts for HVAC airflow model in MIL and SIL environment.
- Developed scripts to analyze the data post HIL testing which increase the data processing by almost 30%.
- Auto test case generation for unit Simulink models using Matlab scripts to increase testing cycle by 15%.
- Create almost 30000 test cases to test and validate functionality and working of models to test models with approx. 100% branch coverage.

Leveraged knowledge in Matlab/Simulink/Stateflow, Embedded Coder, Simulink Coder, C, QML

Magna Steyr India Pvt. Ltd., (Associate Engineer)   Jan'17 – Jul'17
- Optimized the testing tools to get rid of tool version dependency to reduce tool maintenance by 40%.
- Created .dll from Simulink models using tool like RTW & Target Link to increase the testing cycle efficiency by 40%.
- Developed, analyzed and verified the Transfer Case control algorithms (MBSE), followed **AUTOSAR** guidelines during implementation.

Leveraged knowledge in Matlab/Simulink/Stateflow, Python, TargetLink, C, AUTOSAR, PTC MKS Integrity (Version Control)

Tata Consultancy Services, (System Engineer)   Mar'14 – Dec'16
- **Ford Climate Control (Jun'2014 - Dec'2016)**
  - Developed 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.
  - Developed 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 using **MAAB** guidelines.
  - Auto test case generation (4000 test cases) of HVAC HMI unit module using VBA to reduce unit testing cycle by 20%.

Leveraged knowledge in Matlab/Simulink/Stateflow, Simulink Coder, Embedded Coder, C, CAN, C++, Qt, QML, CAN, 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 (Utilized: 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 (Utilized: 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 (Utilized: 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 (Utilized: 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 (Utilized: 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 (Utilized: 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:	***Expert:*** Matlab/Simulink/Stateflow, Simulink Coder (RTW), Embedded Coder, Simulink V&V, TargetLink.
	Advance: PyCharm, Jupyter Notebook, CodeBlocks, Qt, Eclipse.
Programming Languages:	***Expert:*** C, Embedded C, Python 3(OpenCV), VBA, HTML, CSS.
	Basic: VBScript, C++, JavaScript, Shell Script, QML.