

# Apurva Choudhary\_Data Scientist

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[github](#) | [Linkedin](#)

## Education

Qualification	Board/University	Year	Percentage/CGPA
M. Tech(CE)	Charotar University of Science and Technology, CSPIT, Changa Gujarat	2014-2016	8.85
B.E.(CSE)	Barkatullah University, Bhopal (M.P.)	2006-2010	7.75
H.S.C	Kendriya Vidhyalaya, Khandwa(M.P.)	2005	63%
S.S.C	Kendriya Vidhyalaya, Khandwa(M.P.)	2003	76%

## Work/Research Experience

### Research Experience

#### > Design of Payload Data Acquisition Software using Zynq SoC(System-on-Chip).

CSPIT, Changa

Master's Dissertation Project | Advisor: Prof. Jaimin B Chavda

June 2015– June 2016

- This project is funded by ISRO.
- Design a system software for controlling data acquisition process using Zynq SoC.
- The DAQ system is design on the Zedboard which encompasses the Zynq SoC 7000 system (System on Chip -SoC). Zynq SoC is a new type of system architecture which combines features of FPGA(PL) and Processor(PS) on a single chip. The SoC has advantages for design of customized DAQ design, which consists of reconfigurable systems (FPGA) and software programming (Processor system), to solve complex problems at lower costs.
- The processor is driven by Linux OS for managing the movement of data between system components. Petalinux programming environment provides the software emulation and configuration of Zynq based Systems. The whole process is onboard so it is obligatory that whole process must be optimized as much as possible.
- The data rate for Zynq SoC is almost 20 times of that achieved in petalinux environment as PL330 is efficient for bulk data transfer and the Zynq SoC provides high data rate since PL330 DMA is placed in the PS part of the board for better performance.

### Work Experience

#### > Project Engineer Wipro Technologies,

May 2011 - May 2014

##### November 2011-April 2013

- Project Title: Core Operating System Division, Windows Sustainability Engineering (WINSE)
- Role: SDET (Microsoft Contract employee)
- Tools & Frameworks: Windows Testing Technology (WTT); WinStep (for Test automation); MITA (Microsoft Internal Test Automation) framework; TERRA (Test Execution Results Reporting and Analysis); Product Studio (for Defect Management); WinPE (Windows Pre-installation Environment).
- Key Contributions
  - Manual testing, using tool WTT (Windows Test Technology) and pride.
  - Have handled complete kernel area for long time as component owner and received client appreciation for the work.
  - Documented the complete kernel area and received client appreciation for the documentation as well.
  - Have prepared transition plans and documents for several internal tools and frameworks and also Windows OS components which helped in reducing the normal transition cycle for a fresher from 6 weeks to only 2 weeks.
  - Execute Different Win7 components such as Capi1, Capi2, CNG, Code signing, Netlogon, Protected Storage and acquired knowledge on them.

##### May 2013-April 2014

- Project Title: Core Operating System Division, Intel\_PCCG\_Validation.
- Role: Project Engineer (Intel contract employee)
- Tools & Frameworks: Windows Hardware Quality tool (WHQL), Windows Hardware Certification tool (WHCK)
- Key Contributions:
  - Worked for system readiness in which all the drivers starting from chipset to audio and video all are verified to be working fine.
  - Written test cases for test bed setup.
  - Manual testing using Contour tool/server for execution of test cases.
  - Have handled complete system readiness being the single point of contact.
  - Have prepared transition plans and documents for several cases.
  - Involved in optimizing the collateral from 300 cases to 50 cases which were found applicable to the new system and further executing the scenarios and logging bugs.
  - Logging bugs in HSD and tracking.

## Papers/Publications

Apurva Choudhary, Jaimin B Chavda, Amit Ganatra, Rikin J Naik, **Performance Evaluation PL330 DMA Controller for Bulk Data Transfer in Zynq SoC**, Published in: **International Conference on Recent Trends in Electronics Information and Communication Technology (RTEICT-2016)** [\[Link\]](#)

Publisher: IEEE

## Skills

- **Programming languages** – Python, C, Java
- **Python libraries** – Jupyter Notebook, Numpy, Pandas, Matplotlib, Scikit-Learn, Seaborn, OpenCV, TensorFlow, Keras.
- **Computational skills**- Machine learning, Deep learning, LATEX, LINUX (UBUNTU).
- **Machine Learning Algorithms**: Linear Regression, logistic Regression, KNN, Decision Tree, Random Forest, SVM, PCA, Grid SearchCV, Pipelines.
- **Deep Learning**: ANN, CNN, Autoencoders, Architectures (AlexNet, VGG16, InceptionNet, MobileNet), Object detection and Localization algorithms like Sliding Window Detection, Yolo Algorithm, GAN, Mixed Precision training.
- **Others**: Dockers, Kubernetes

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## Online Courses/Certificates

- **Advance Data science course with hands-on Google Colab** from **Netzwerk Data Science Academy** as ISO certified institute- year 2020
- Introduction to AI in the Data Center with **NVIDIA**[\[link\]](#) – year 2019
- ISTQB-Certified Tester Foundation Level(CTFL)- year 2019

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## Projects Accomplished:

- **Face Mask Detection using Computer vision and Haar Cascade:**
  - Face mask detection model was built using MobileNet architecture, cv2 library & Haar Cascade classifier.
  - Enhanced this by enabling face detection using webcam as well.
  - **Tools used:** Python, Matplotlib, cv2, TensorFlow, Haar Cascade.
- **Emoji Recognition using segmentation in OpenCV:**
  - A dataset containing 10 different hand emojis is used to build and train the model
  - The dataset used is created by using opencv and its functions like dilation, morphology, contours over the frames from webcam. The dataset achieved is converted to csv file for training input.
  - **Tools used:** Python, Numpy, cv2, keras, CNN.
- **Image Colorization using convolution Auto-Encoder:**
  - A convolutional AutoEncoder to colorize gray scale images using LAB color space also the use of VGG16 architecture to achieve better accuracy through Transfer Learning.
  - The model accuracy is 86% and reconstructed images after colorization are attached for reference.
  - **Tools used:** Numpy, Matplotlib, keras.
- **Facial Emotion detection using Transfer learning:**
  - Implemented a CNN for detecting the emotions (happy, sad, angry, surprise, neutral) on the face of a person with 60% accuracy on FER2013 dataset. In addition to classification object detection is also performed using Haar Cascade classifier.
  - The classification and Localization is performed for live webcam video.
  - **Tools used:** Matplotlib, CNN, Keras.
- **Cancer Data Classification using Machine learning models:**
  - Cancer dataset more than 30 features is used for classifying cancer cells into Malignant (Cancerous) and Benign (Not Cancerous).
  - Applying the fundamental concepts of machine learning like Cross Validation, forward selection, PCA for dimensionality reduction and pipelines
  - Models for logistic regression: KNN, Decision Tree, SVM. Also applied GridSearchCV for parameter selection.
  - **Tools used:** Python, Numpy, Pandas, seaborn, Jupyter, Sklearn.
- **EDA and Prediction on House Price dataset using Linear Regression:**
  - House Price dataset has more than 80 features & quite a lot of missing data, which was handled by various feature engineering methods
  - Exploratory data Analysis is extensively performed on the categorical and numerical features with different visualizations and PCA is used for dimensionality reduction.
  - Linear Regression Model was built for predicting the house price with 90% accuracy
  - **Tools used:** Python, Numpy, Pandas, Matplotlib, seaborn, Jupyter, Sklearn.

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## Achievements & Extra-Curricular

- Attended workshops on “**Computational Complexity – Theory and Applications**”.
- Attended workshop on “**Future Trends and Opportunities in Data Analysis, Business Intelligence & Big Data along with Research Methodology and Thesis Writing**”.
- Consistently ranked among the Top 10 students in a batch of 65.
- Received many client appreciations (Microsoft and Intel).
- Active participation in Tech Fest events.
- Achieved award for singing competition at school level.
- Received award in drawing competition.
- Classically trained in Kathak.
- **Interpersonal abilities:** Problem solving, Decision making, Excellent Communication, Strong Interpersonal Skills

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**Leisure Interest:** Singing, Playing Badminton, Cooking