

# Arpit Sharma

## Curriculum vitae

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### Education

- 2015-19 **Indian Institute of Technology, Guwahati.**
  - Bachelors of Technology, Major in Engineering Physics
- 2014 **Higher Secondary Examination (MPBSE).**
  - Physics, Chemistry, Mathematics

### Work Experience

- July 2019 – Present **Senior Software Engineer, HSBC Technology India Pvt. Ltd.**
  - Built a Flask and Python based internal web application to enable business stakeholders to modify customer loan data safely in a responsible manner resulting in substantial reduction in the SLA from 5 days to a few minutes and streamlined the approval mechanism for users through the application.
  - Developed Regulatory Risk Reports by performing ETL processing on raw customer data which aided stakeholders to make key decisions in loan approval process.
  - Played a key role in the migration of data from SQL database to Delta-Lake along with refactoring the ETL code-base from Python to PySpark; making the ETL process 200% faster by utilizing the parallel computation provided by apache spark; Was recognised by the Senior management for completing the work in just 6 months.
  - Led a team of 3 people from proof of concept to implementation of Row Level Security over Customer data to adhere to GDPR data protection law to prevent misuse of data.

### Projects

- July 2018– June 2019 **Face analysis in Debate Videos, Prof. Prithwijit Guha, IIT Guwahati.**
  - Bachelor's Thesis Project
  - Extracted faces across the frames from debate videos by combining CNN based face detector with KCF Tracker algorithm to determine the participants in the debate video.
  - Linked collected tracks using face embedding along with face exclusivity
  - Used the collected information to answer "Who was seen?" & "Who spoke When?" questions.
- January 2019– April 2019 **Active Speaker Detection, Prof. Prithwijit Guha, IIT Guwahati.**
  - Identified active(speaking) & passive(non-speaking) participants in debate in real time by comparing lower & upper face activity of participants using Optical Flow in the face images.
  - Calculated the relative motion of lower part of the face as compared to upper part by applying Gaussian filter over optical flow motion values of the upper and lower half of the face image and dividing them.
  - Achieved accuracy of 70% for every 2 mins of video clips.
- May 2018– July 2018 **Multiple Object tracking, Prof. Prithwijit Guha, IIT Guwahati.**
  - Performed Multiple Face detection and tracking in videos and created cluster of faces into groups using KNN to identify number of unique people from the video.
  - Classified all groups of faces on the basis of gender using Feedforward Neural Network with 86% of accuracy in both cases male & female.
- January 2018 – April 2018 **Music Recommendation, Self-Project.**
  - Using Spotify API to extract song's audio features like timbre, tempo, loudness, beats to create a cloud of similar songs.
  - Creating this cloud by feeding audio feature data to neural network.
  - Using this cloud to recommend songs to other users who like some of the songs from the cloud.
- February 2017 **Sentiment analysis of tweets, Self-Project.**
  - Developed a website that shows the sentiment analysis of tweets in real time.
  - Used Word2Vec word embedding to train a neural network model on IMBD dataset with 87% accuracy.
- May 2017 **Virtual Stock Trading Websites, Self-Project.**
  - Developed a website for virtually Selling and Buying the Stocks in real time using Python.

## Skills

Programming C, Python, Flask  
Database MySQL, SQLite  
Frameworks PyTorch, Tensorflow, Apache Spark, Qiskit  
Utilities Anaconda, Git, Jupyter Notebook  
Platforms MacOS/Linux

## Relevant Courses

- Pattern Recognition and Machine Learning
- Quantum Mechanics
- Linear Algebra
- Quantum Algorithms & Cryptography (Ongoing - NPTEL)
- DeepLearning.AI (Coursera)
- Statistical Mechanics
- Advanced Calculus
- Electromagnetism

## Certifications

December 2022 Structuring Machine Learning Projects by Coursera  
December 2022 Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization by Coursera  
December 2022 Neural Networks and Deep Learning by Coursera  
November 2022 Quantum Business Foundations Issued by IBM  
2020-2023 Associate Cloud Engineer by Google Cloud

## Miscellaneous

2017-21 Participation in Online Open Source event Hacktoberfest  
2020 Taught Programming to underprivileged kids from rural Telangana as part of CSR activity  
2015 Secured All India Rank of 4668 in JEE-Advanced 2015 out of 150,000 candidates.