

# ASHISH BHAT

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## EDUCATION

**Virginia Polytechnic Institute and State University: Blacksburg, Virginia.** Expected Graduation: May 2023  
Master of Engineering in Computer Science & Applications **CGPA: 4.0/4.0**  
**Relevant Coursework:** Intermediate Data Structures and Algorithm Analysis, Data Analytics, Social Media Analytics, Information Visualization, Software Engineering, Machine Learning with Big Data, Introduction to Urban Computing.

**Thadomal Shahani Engineering College (University of Mumbai): Mumbai, India.** June 2021  
Bachelor of Engineering in Computer Engineering **CGPA: 8.69/10**  
**Relevant Coursework:** Data Structures, Advanced Algorithms, Software Engineering, Mobile App Development, Web Design, Database Management System, Big Data & Analytics, Artificial Intelligence & Soft Computing, Operating System, Distributed Computing, Machine Learning, Data Warehousing and Mining, Cloud Computing, Human Machine Interaction.

## TECHNICAL SKILLS

- Web Design: RESTful Web Services (API), Spring Boot, JavaScript, Bootstrap, React.js, Node.js, Next.js, Redux.js, Flask, jQuery, XML, PHP, CSS, HTML, HTTP, DOM, AJAX, D3.js, JSON.
- Data Base Management: MySQL, MongoDB (NoSQL).
- Programming Languages: Java, Python, C, R
- Libraries: Tensorflow, OpenCV, Keras, Scikit-learn, Pandas, NumPy, SpaCy, NLTK, Plotly, Seaborn, Matplotlib, Networkx, Tweepy.
- Others: Git, Heroku, Tableau, Maven, Postman, Jira, Linux, Windows, Bitbucket, Jenkins, Confluence, Scaled Agile Framework.

## WORK EXPERIENCE

**Staples Inc, Framingham | Software Engineer Intern** June 2022 – August 2022

- Redesigned the store filter component for the Staples website by adding the functionality for users to select multiple stores within a desired radius, using React.js, Redux.js, and Node.js.
- Developed RESTful web services (API) for the redesigned store filter component using Java and Spring Boot, and used Jenkins for continuous deployment, impacting **60%** of the traffic.

**1 Martian Way Corp, Mumbai | Deep Learning Intern** November 2019 – December 2019

- Developed a software to locate, segregate, and enumerate the products in a given image using computer vision and deep learning, subsequently deploying the application for ACC India (cement manufacturer) and a local supermarket.
- Trained a FRCNN Inception V2 model on more than 1000 images for object detection, achieving an accuracy of **98%** and deployed it as a web application using Flask.

## ACADEMIC PROJECTS

### Analysis of Google Play Store Applications

- Designed a web-based interactive visual data story that allowed the audience to gain insights about the trends in the android market, helping them create successful applications, and hosted it as a public website using GitHub Pages.
- Employed the design sprint process, obtained the data, came up with the data story, sketched the visualizations, implemented it using D3.js, HTML, CSS, Javascript and evaluated the results.

### Intermediate Data Structures and Algorithm Analysis

- Implemented skip list to store and query (dump, region search, intersections, etc) a collection of rectangles and subsequently augmented it with the implementation of PR Quadtree for making the spatial queries efficient.
- Implemented external sorting algorithm using replacement selection and multiway merge algorithms.

### Photo Sharing Application

- Developed an application for users to post photos with like and comment functionalities, using React.js, Redux.js, Node.js, Express.js and MongoDB.
- Implemented login feature using JSON Web Tokens and Google OAuth, as well as pagination and search functionalities.

### Image Captioning using Ensemble Model

- Implemented an encoder-decoder architecture for image captioning, using computer vision and natural language processing, creating a graphical user interface using tkinter.
- Encoder consisted of an Inception V3 model while a combination of transformer encoding and bidirectional LSTM formed the decoder, resulting in a **7%** increase in BLEU score as compared to individual models.

### Movie Recommendation System

- Engineered a hybrid system for movie recommendation by incorporating content-based filtering with collaborative filtering, decreasing the loss by **8%**.
- Designed a graphical user interface using tkinter, and implemented the functionality for users to rate movies, which predicted other movies' estimated ratings.

## PUBLICATIONS

Bathija Pranav, Chawla Harsh, **Bhat Ashish**, Deshpande Arti (2022) Image Captioning Using Ensemble Model. In: Tuba M., Akashe S., Joshi A. (eds) *ICT Systems and Sustainability*. Lecture Notes in Networks and Systems, vol 321. Springer, Singapore. [https://doi.org/10.1007/978-981-16-5987-4\\_35](https://doi.org/10.1007/978-981-16-5987-4_35)