SHLOK VIVEK NAIK

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EDUCATION

North Carolina State University, Raleigh, NC - Master of Computer Science **Aug 2022 - Dec 2023**

Relevant Coursework: Automated Learning and Data Analysis, Design and Analysis of Algorithms, Neural Networks and Deep Learning, Automated Software Engineering, Foundations of Data Science, Cloud Computing, Data Privacy

SIES Graduate School of Technology, University of Mumbai, India - Bachelor of Computer Engineering **Aug 2018 - Jun 2022**

Relevant Coursework: Machine Learning, Database Management Systems, Data Warehousing and Mining, Big Data Analytics, and NLP.

TECHNICAL SKILLS

- **Languages**: Python, C/C++, C#, ASP.NET, SQL, JavaScript, HTML/CSS, R, Kotlin
- **Frameworks and Libraries**: Flask, Bootstrap, NodeJS, MongoDB, Express.js, React.js, Next.js, pandas, NumPy, Matplotlib, Sklearn, TensorFlow, OpenCV, NLTK, SpaCy, torch, Gensim, PHP, AJAX, JQuery, DART, Flutter, Entity Framework
- **Developer Tools**: Github, Git Extensions, Heroku, Google Cloud Platform, Android Studio, PyCharm, Spyder, Jupyter Notebooks, Eclipse, Atom, Google Colab, Amazon Web Services, Tableau, Azure Devops
- **Methodologies**: AGILE, SCRUM

PROJECTS AND PAPERS

Assignment Submission and Marking Portal

- Built an efficient assignment checking and submission interface using **React.js, Node.js,** and **Express.js**, with an ability to check for plagiarism and cheating in a timely manner averaging 5 seconds per assignment.
- Developed a sophisticated plagiarism detection system that factors in the sentence structure and context of two paragraphs. It achieved an 85% accuracy rate. Additionally, integrated Gensim's **Doc2Vec** model and **SpaCy** and framed an API endpoint for easy access.
- Demonstrated proficiency in object detection techniques utilizing **p5.js, YOLO**, and **OpenCV** frameworks to track and analyze eye movement patterns of a test subject, detecting any unusual or suspicious activity. Coordinated the integration of subject and additional human detection functionality into video frames. Deployed the website on Heroku and implemented Cloudinary for efficient data storage.

Cash Flow Management Application

- Developed a mobile application that extracts information from bills and generates an organized financial statement for the user using **Robotic Process Automation**. Utilized **Flutter** and **DART** to create a user-friendly interface that accepts images of bills.
- Implemented image segmentation with **OpenCV** that divides the bill into text and whitespace blocks. Integrated Optical Character Recognition (**OCR**) to extract text and preprocess it to create a dataset. Trained a Sequential Model to classify bill elements into different categories based on the dataset. During application testing, achieved an accuracy rate of 75% and a processing time of 10 seconds per bill.

Smart Journal Application for Mental Health Analysis

- Developed a mobile application using **Kotlin** and **Firebase** to create a sophisticated mental health monitoring platform for individuals by analyzing hundreds of textual entries and generating insightful visualizations.
- Implemented voice-to-text functionality in multiple languages, enabling users to easily document their daily experiences. Employed artificial neural networks (**ANN**) in **Python** to develop Mood Detection and Profanity Detection features, achieving high accuracy rates of 80% and 85%, respectively.

Employee Attrition Prediction and Retention Strategy

- Pioneered the development of a predictive tool utilizing **SVM, XGBoost, and Naive Bayes** algorithms augmented by Principal Component Analysis. Used Python and scikit-learn to determine employee attrition risk rates in healthcare.
- Spearheaded a comparative analysis to determine the most effective method, employing analytical tools such as **KNN** to identify the top 10 at-risk employees and utilizing comparative methods to discover optimal parameters for employee retention.
- Achieved a 92% accuracy rate using the XGBoost algorithm, demonstrating exceptional precision and accuracy in predicting employee attrition risk rates. Hosted the application using a Flask server, ensuring seamless and efficient deployment.

PROFESSIONAL EXPERIENCE

Carnival Cruise Line, Miami- *Information Technology Intern* **May 2023-Present**

- Implemented Transactional Outbox Pattern using Dependency Injection and Entity Framework to ensure data preservation in the event of a Unisys System Failure, enabling seamless transfer of operations to a different data centre, maintaining data integrity and continuity.
- Engineered Manager Components for Azure Service Bus using C# and .NET Framework which streamlined the message handling process and enabled smooth and efficient data exchange within the system. This facilitated coordinated passage of Service Bus Messages to Unisys, preventing potential bottlenecks or delays in the system's functionality. Developed a Reporting system to streamline the reporting and mailing process for failed credit redemption and compensation attempts, ensuring prompt and accurate communication with stakeholders.
- Leveraged Azure DevOps pipelines to optimize development and deployment processes, enabling smooth automation of build and test-driven development using XUnit and MOQ. This ensured efficient and reliable delivery of the software solutions. Developed a Health Check Agent for the FCC Navigator Project, which performs liveness checks on API calls. This agent guarantees that the processing time for these calls is limited to 500 milliseconds, ensuring optimal performance and responsiveness.

Wilson College of Textiles, Raleigh - *Web Services Intern* **Apr 2023-Present**

- Monitored and promptly responded to service requests in compliance with established time frames for the Wilson College, utilizing ServiceNow assignment group and adhering to web accessibility guidelines.
- Coordinated and delivered Trello training sessions for Wilson College community members, identifying opportunities to assist with the use of WordPress, PHP and related plugins to update web content and layout modifications. Utilized EXCEL tools for data manipulation and cleaning of procured data.
- Catalyzed the creation and configuration of new websites within NC State and Wilson College protocols, while periodically testing WordPress plugins and conducting research to identify potential web-related solutions, referring clients to appropriate university or vendor resources.

SIES Graduate School of Technology, Mumbai, India - *Research Intern* **Jun 2021 – Aug 2022**

- *Contributed to the publication of the research paper 'Investigating Clinical Named Entity Recognition Approaches for Information Extraction from EMR.* Led the development of a treatment prediction model for diseases by extracting relevant symptoms and tests from over 100,000 lines of textual data scraped from Electronic Medical Records of 50 patients using SpaCy. Categorized the extracted data points according to the BILUO notation to enable efficient processing and analysis.
- Developed a named entity recognition system that categorized entities in Electronic Medical Records (EMRs) using Spacy and Google's BioBERT model, achieving an accuracy rate of 80%. Created visual representations of 100 identified diseases, symptoms, and treatments using Neo4.js and saved them to a Neo4.js database for efficient EMR entity linking which facilitated disease and treatment prediction based on symptoms. Significantly reduced manual processing time by 85%.

SmartBridge Educational Services Private Ltd., Mumbai, India - *Machine Learning Intern* **May 2020 – Jul 2020**

- Developed an Intelligent Customer Helpdesk for Water Purifiers by automating query resolution via application of Smart Document Understanding function on Product Manuals. Leveraged IBM Watson Assistant, Discovery and IBM modules to train the Helpdesk chatbot using the QnA bank generated by the function. This consequently reduced human intervention by 90%.