Aditi Bhardwaj

3+ Years' Professional Data Science and Machine Learning Experience

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Education

Indiana University-Purdue University Indianapolis **Indianapolis, USA**
Master of Science in Health Informatics *May 2023*

Jaypee Institute of Information Technology **Noida, India**
Bachelor of Technology in Computer Science and Engineering *May 2018*

Experience

The Polis Center at IUPUI **Indianapolis, USA**
Data Analysis Intern *May 2022-Current*

- Lowering the time to publish by 15% by creating a Python module that updates the fox-cities website automatically after Tableau visualization is finished.
- Created a Python module that can retrieve data from freely available sources like the American Community Survey (ACS), the Indiana State Department of Health (ISDH), and others, store it in a database using Pyodbc, and cut the time it takes to aggregate data by 20%.
- Completed a module to retrieve SAVI community data from a database, perform statistical analysis on social economic indicators, and visualize the data into an interactive map of the Social Vulnerability Index (SVI) and Social Deprivation Index (SDI) for the county of Indiana using R and SQL, and deployed to Fox Cities.

Indiana School of Dentistry **Indianapolis, USA**
Graduate Research Assistant *January 2022 - Current*

- Building a pipeline that combines a patient's past medical history with radiographic pictures in order to separate priority patients for the dentist, foresee where dental caries would appear using image segmentation, and assess the requirement for RCT. This is anticipated to shorten treatment time by 15 times.
- Working on an NLP model to extract essential concepts like prophy, floride cleaning, etc. and summarize clinical notes, which is anticipated to reduce dentists' workload by 40%.

Indiana University-Purdue University, Indianapolis **Indianapolis, USA**
Graduate Research Assistant *August 2021 - May, 2022*

- Built a dashboard to identify the many social determinants of health that affect COVID-19 and forecasted death rates based on these social factors with more than 85% accuracy using machine learning.
- Used BERT to do sentimental analysis on scraped data from news articles and tweets about the pandemic. Performance was improved by 20% as a result.

NTT DATA Services **Noida, India**
Software Development Senior Associate *July 2018-July 2021*

- Designed a module to handle the tasks required for the data administration of diverse clients, decreasing manual efforts by a factor of ten. This was accomplished by using data analysis methods to investigate systems and processing large data.
- Made an analytical dashboard with Python and R to build configurable reports and send clients emails automatically after report generation. Built a module using SQL that searches several networks and saves results in a database. It gave the existing system a 15x improvement.

Skills

Technologies: Machine Learning, Deep Learning, Natural Language Processing, Data Structures and Algorithms, Database Management System, REST APIs, Object Oriented Programming
Languages & Databases: Python, R, C, C++, MySQL, MongoDB
Frameworks and Libraries: TensorFlow, Keras, Numpy, Pandas, Sckit-Learn, Scipy, Matplotlib, NLTK, Opencv, NetworkX, BeautifulSoup, Apache Spark, Plotly, Pytest
OS & Developer Tools: Linux, VS Code, Git, Docker, Kubernetes, Jupyter Notebooks, RStudio, Tableau

Research and Publications

1. Leveraging Machine Learning and Natural Language Processing for Predicting the Crime Rate: Reach 360, in Proceedings of 3rd International Conference on Internet of Things and Connected Technologies (ICIoTCT), 2018.
2. Reach360: A comprehensive safety solution, in 2017 Tenth International Conference on Contemporary Computing (IC3).

Projects

Brain Tumor Segmentation | *Python, Deep Learning, Tensorflow* **April, 2022**

- Segmented brain tumors in MRI scans with dice scores of 0.69 using UNet mplemented in TensorFlow on a pre-processed BraTS dataset.

Sugar Caries Root Cause Detection | *Python, MySQL, Machine Learning* **December 2021**

- Analyzed the dental data and performed statistical analysis to find the variables that are significantly associated with the occurrence and development of caries and eventually passed them through the prediction models and trained ML algorithms to predict the root cause of dental problems and found that sugar caries are prominent factor for dental problems.
- Created a framework using matplotlib and seaborn for visualizing the trends and understanding patterns of sugar intake among adults using the data.

Malware Detection | *Python, Machine Learning, MySQL* **November 2021**

- Analyzed and classified android malware samples taken from a huge malware dataset with 14 prominent malware categories and 385 eminent malware families based on the similarity of their attributes such as memory, API, network, battery, logcat, process using machine learning models and performed data cleaning using pandas.
- Developed machine learning models namely: SVM, Logistic Regression, MLP, XGBoost and Random Forest to categorize Android malwares on the basis of six types of dynamic parameters, including memory, API, network, logcat, battery, and process using scikit-learn.

Fake News Detection | *Python, Google API* **February 2018**

- Designed a tool to find out the degree to which the news headline is related or unrelated to the news article written with it by applying machine learning techniques like RNN and LSTM.
- Extracted the key information from Signal Media news dataset in JSON format for stance detection between article headline pair by applying methods like sentence tokenization and part-of-speech tagging.
- Detected fake twitter accounts and visualized their follower networks through Gephi and NetwrokX library and achieved 86.4 score on the test set, which outperforms the FNC bench-mark without any feature engineering and visualized the results.

Reach360 | *Java, Android Studio* **January 2017**

- Developed an android application for the safety of the women in trouble situations with features like the emergency SOS calling, live location tracking along with GUI for each of these features.
- Developed the feature of alerting the user about the crime intensity of the area which the user passes by which was done by the help of data crawling and applying NLP technique using NLTK library.
- Developed the 'shake-n-alert' feature in the app which sends alert along with the user's live location to the close friends in the emergency contact list of the user in situations of trouble.

TrendIn | *XML,Java, Android Studio* **July 2016**

- Developed an android application which is a single solution to the multiple queries of the students within a college.
- The application had the feature of tracking the student's attendance through data collection and applying regression techniques on that data.
- The students could easily access the weekly assignments put up by their teacher on the Dropbox like platform provided by the app. It also has the feature through which the students could know about the happenings and events of the various hubs and societies in the college.