Shambhabi Poudyal . Jarvis Consulting

I am a recent graduate from University of Waterloo with Masters in Electrical in Computer Engineering. With my specialization in Machine Learning and AI, I plan to start my career with Data Engineering, Data Analyst or Business Analyst positions. Being a passionate problem solver has always helped me in my academic as well as professional fronts and I believe it will be one of my important assets in these development roles as well. Having 5 years of experience in engineering roles, I am now looking forward to shifting my career towards more software development-related fields. A career shift is never easy but I believe learning and insatiability are the keys. In the long run, I plan to shift my career path towards technical managerial roles, my work experience as Project Head for engineering projects has added fuel to set these long-term goals. I am very excited and motivated to start this journey and unfold the various chapters it has in store for me.

Skills

Proficient: Java, Linux/Bash, RDBMS/SQL, Agile/Scrum, Git

Competent: Python, Python Libraries(NumPy, SciPy, Pandas, Matplotlib, PyPlot, Seaborn), Deep Learning Python Packages(TensorFlow, Keras, ScikitLearn), C/C++, MATLAB

Familiar: R, GCP, Docker, Google Colab, SPSS, Kaggle, MiniSat solver

Jarvis Projects

Project source code: https://github.com/jarviscanada/jarvis_data_eng_ShambhabiPoudyal

Cluster Monitor [GitHub]: Designed a Linux Cluster Administration (LCA) system to manage a cluster of nodes running in CentOS 7 and monitor the resource usage. Calculated hardware specifications and usage data of each node in a RDBMS database that can be used for future references. Used a VM instance created in GCP connected via SSH. Implemented using docker engine and Postgresql with bash scripting.

Core Java Apps [GitHub]:

- Twitter App: This Java Twitter app is designed to realize the purposes of a Twitter account which allows users to search, post, and delete tweets via the official Twitter REST APIs. A simplified tweet model is created with required dao, service, and controller layers to access the tweet using an HTTP request. Mockito and JUnit testing are used for the integration and unit testing of this app. Maven dependency model is incorporated to add all the necessary Java libraries (mockito, junit, fasterxml, springframework). This app has also been implemented with Spring framework and docker.
- JDBC App: JDBC application is designed to read, write, update and delete (CURD) data against RDBMS using Java DataBase Connectivity (JDBC). JDBC allows a connection between a Java application and RDBMS. Here, Postgresql is used for RDBMS while maintaining the maven project management layout. Different Data Access Objects(DAOs) are used to represent objects that may be simple rows or complex queries. Data Transfer Objects(DTOs) are created using these DAOs.
- Grep App: Java Grep application is designed to visualize the usage of the grep app in Linux systems. This app allows users to search for matching strings from files. First, the app is created using for and while loops, which is later realized using lambda and stream APIs. This app has been implemented using Java interface and required library packages including java.io, java.util, and java.slf4j. Exception handling has also been considered with equal importance. Java code is written in IntelliJ IDE with Maven project management outline. Using GCP and VNC for remote VM instance connection, this app is built using a docker engine for easier implementation purposes.

Hadoop [GitHub]: This Hadoop project focuses on data analytics processing Big Data using Core Hadoop components like HDFS, MapReduce and YARN. Here, a Hadoop cluster with a master node and two working nodes is created for the analysis in the GCP dataproc. Public dataset worlsbank_wdi hosted on Google BigQuery is used for reference and analytical purposes. A Hive project is created with Zeppelin notebook using GCP web interfaces for executing the SQL queries.

Highlighted Projects

License Plate Detection and Recognition using Joint CNNs: Implemented cascaded CNN model to detect license plate with high accuracy and speed. Used holistic CNN structure for recognition of detected license plates. Obtained an

overall accuracy of 98% on CCPD parking dataset containing wide variety of license plates. Experimented with a total of 250k images. Used Google Colab, Python, NumPy, SciPy, TensorFlow, Keras, Pandas, Matplotlib, PyPlot

Minimum Vertex Cover for Street Camera Deployment: Designed a multi-threaded Linux program to find the minimum number of street camera locations needed to achieve full coverage of a network of roads for traffic management. Visualized this as a minimum vertex cover problem and solved using the MiniSat solver library. Used C++, Python, MiniSAT solver, Git, CMake, Linux POSIX threads.

Feature Extraction and Classification on Fashion MNIST Image Dataset: Implemented machine learning techniques to extract features of images from the dataset and classify them. Compared results of various classifier algorithms to identify the best-suited classifier for the dataset. Designed using Python in Google Colab, compared results in Kaggle.

Object Detection Using Sliding Window for Locating Books in a Library: Developed image processing model to locate a book of interest in a library setup. Used SIFT, SURF, and ORB feature detection algorithms to find a match of the requested book to recommend a precise location in the library. Designed using Image Processing Toolbox in Matlab.

Professional Experiences

Junior Developer, Jarvis Consulting Group (2021-present): Developed software projects in Java using bash scripting. Designed Linux Clustering Agent software for monitoring system resource usage. Designed a trading platform REST API in Java.

Electronics Engineer, Nepal Electricity Authority, Nepal (2014-2019): Examined energy transmission sub-station hardware and equipment's software to identify issues and solved them. Programmed and Tested sub-station systems energy meters and relays. Evaluated and Analyzed bids offered for sub-station projects through competitive bidding.

Lab Instructor, Advanced College of Engineering and Management, Nepal (2012-2014): Conducted engineering undergraduate laboratory classes for C and C++ Programming and Microprocessor. Supervised undergraduate projects: 'GSM Based Home Automation System', 'RFID Based Vehicle Tracking and Registration System'

Education

University of Waterloo (2019-2020), MEng in Electrical and Computer Engineering, Electrical and Computer Engineering

Tribhuvan University (2014-2016), MS in Computer System and Knowledge Engineering, Electronics and Computer Engineering

Miscellaneous

- Conference Paper Presenter
- Electrical Project Coordinator