**RISHIKA SWARNKAR**

**St Charles, MO** (573)-200-2495

[rishikaswarnkar@gmail.com](mailto:rishikaswarnkar@gmail.com)

Linkedin.com/in/rishikaswarnkar

Github.com/rishikaswarnkar

**Professional Summary:**

Data Scientist with full stack web development skills in Python, .NET and Php. Equipped to automate workflows end to end and create quick web applications to provide insights into the database using Flask and Dash. Perform in depth data analysis using various machine learning and deep learning neural network models.

**Education:**

* Bachelor of Science in Computer Science, Lindenwood University, St Charles, MO (Dec 2020)
* Associates of Arts and Science in Computer Science, St. Charles Community College, St Charles, MO (Aug 2018)

**Certificates:**

1. Thomson Reuters Financial Database EKION Certification
2. COMPTIA Security A+ - (In progress)

**Major Classes:**

* + Assembly Language – Linux OS
  + Neural Network - Special Topics
  + Machine Learning - Special Topics
  + Internet Of Thing – Special Topics
  + Application of Finance in Investment (FIN4900)
  + Android Application Development
  + Regression Analysis with R

**Programming Skills:**

* Languages: Python, C++, Java, Javascript, ASP.net
* Frameworks: .NET core, Flask, REACT.js, Dash + Plotly, Node.js
* Configuration Formats : XML, JSON (JavaScript Object Notation), YML
* Database: MySQL, MongoDB, MSSQL with Programmed Stored Procedures, etc
* Object Relation Mapping (ORM): SQLAlchemy 0- SQL engine for python applications
* IoT: Arduino, Amazon S3 buckets, Adafruit, Linux
* Other: Android Studio, PHP, Git, Confluence Tools : JIRA, BitBucket

**Data Science Skills:**

* Data Science: R, Python
* Deep Learning Library: Keras, TensorFlow, Neural Networks, Computer Vision (Convnets), Visualizing Filter Activations, Recurrent Network, Sequence/Natural language Encoder (Long Short Term Memory Network), Time Series Prediction
* Machine Learning: Decision Trees, Random Forest, K- Means Clustering, Hierarchical Clustering, Support Vector Machines, Dimensionality Reduction, Principle Component Analysis, Ensemble and Resampling Methods
* Search Engine Optimization: Google Analytics, Mailchimp (Email Marketing)
* Statistic: Excel for Professionals; Excel: Analysis of Variance (ANOVA) and Descriptive Statics. Probability, descriptive and inferential statics using confidence interval, formulating null hypothesis and hypothesis testing.

**Data Analytics:**

* SQL Server Reporting Service (SSRS)
* Data Integration: **SQL Server Data Tools, SQL Server Integration Service (SSIS)**
* Tableau
* Power BI

**Deployment and Server Skills:**

* Windows IIS server – configuring FastCGI, Handle mapper, ODBC Driver, web.config, app logs
* Webserver – Apache Tomcat, XAMP, WAMP, ISAPI
* Cloud deployment like Kubernetes, AWS S3 buckets

**Work Experience:**

* **Operations Analyst II - Charter Communications**

Town and Country, MO (May 2020 – Present)

Event Management Analysis (May 2021 – Present)

* + - Automated creating daily Powerpoint presentations decks using pptx python library
    - Created a Dash Board that would enable us to track similar events in past to establish or reject relations between data to find opportunities

Change Management Operations for Charter enterprise (May 2020 – May 2021)

* + - Automated multiple workflows using SQL Server Reporting Services
    - Deployed a Flask web application, connected it to the SQL Server with a Mongo DB backend to pipeline data
    - Hosted it on IIS server with ODBC connection and Fast CGI configurations
    - Deployed Machine Learning Models on the application to flag high impacting upcoming changes
    - Helped teams in conducting various UAT test to ensure smooth deployment
    - Conducted daily audits of all the IT and Customer Impacting changes that are to be deployed to raise awareness within departments of the fall outs.

In both the roles, I created various Executive Reports and Dashboards to analyze BigData using PowerBI and Flask application with TensorFlow and other python libraries.

* **Software Architect - Interactive Data Solutions**

St Charles, MO Small Business IT Solution - (August 2018 – Present)

Worked as a Freelancer to provide cost efficient hosting and deployment architecture for Small Businesses. Some of the wide variety of software solution are Search Engine Optimization, analyze traffic and target audience using social media marketing tools, configured Camera and Security System online and viewable on cellphones for clients, curated Node.js applications for Pool Leagues, and provide database solutions and connections to store data through web application.

* **Communication Desk Specialist - Charter Communications**

Town and Country, MO (November, 2018 – October, 2019)

* Communications Desk is a cooperate unit that pivots between multiple Customer Operations departments like the 12 Regional Operation Centers, 2 Network Operational Centers and IT Service Operation Centers to ensure quick escalation and resolution of outages.
* We intake from various customer facing departments to escalate and track issues causing high level outages customers with threshold of 10,000 customers or employees tool outages that impacts billers, etc.
* Document outages, updates and resolution to provide overview of the event.
* Geographic and forward feed understanding of Spectrum’s market, billers and scope of impact based on various headends, Video Controllers, KMA (Key Management Areas) etc.
* Proactively monitor the network utilizing various dashboards

Monitoring Tools: Queues, Quantum, and Guavas

**Escalation Tools: BCM software Remedy, ServiceNow, Confluence JIRA**

Deflection Tools: Interactive Voice Response (IVR) Messaging - ETS Studio

* **IT Helpdesk Analyst, St. Charles Community College**

St Charles, MO • August, 2017 – August 2018

* Provided concise and clear troubleshooting directions to students and staff members
* Pattered up with Tier II and Tier III professionals for escalations
* Performed IT projects around the campus to include updating patches in Software, clearing BIOS, and setting up the computers permissions for students/faculties.
* **Computer Lab Assistant, St. Charles Community College**

St Charles, MO • August 2017 – August 2018

* Supervision and guidance to students in the computer lab at the technology building with maximum capacity of 40 students
* Guide students in homework related to Python, C++, Game-maker, Adobe, MS Office Suite etc.
* Debugg various unfamiliar software/hardware issues

**Data Camp Certificates:**

* Python Data Science Toolbox – Scoping and Error Handling
* Deep Learning in Python: Deep Learning Models using Keras 2.0
* Convolution Neural Networks for Image Processing
* Advanced Deep Learning with Keras in Python: Multiple input and multiple output deep learning models using Keras.

**Projects**

**Internet of Things (IoT)**

* **Fish Bowl Feeder:** 
  + Used Arduino to schedule a servo to feed fishes on scheduled time.
  + Installed a DHT Temperature and humidity monitor and graphed real time temperature and humidity graph on Amazon webserver.

**Data Structures (C++)**

* Mailbox List Update: C++, **Linked List**
* Infix to Postfix and Evaluation: C++, **Stacks using Pointers**
* Customer Processing Line: C++, **Queues**
* Sorting Inventory: C++, **Exchange Sort, Shell Sort, Quick Sort**
* Store and Print Inventory: C++, **Binary Search tree [In order Traversals]**

**Android Application Development**

* **Ski Trip Reservation**: Android Studio: Java + XML
* **Financial Calculator**: Android Studio: Java + XML
* **Autumn Playlist**: Android Studio: Java + XML

**Full Stack Applications**

* TO- DO List Web Application using **MongoDB, Express.js, Amgular.js and Node.js stack**
* Inventory Management Solution: **PHP, HTML, MySQL, deployed on Apache Websever**

**Neural Network**

An Artificial Neural Network is computational model inspired by biological working of neurons. Python’s TensorFlow and Keras are largest deep learning libraries that power industries like Airbnb, Google etc. for Artificial Intelligence.

* **Breast Cancer Dataset**:
  + Design a neural network to train on Breast cancer dataset with 30 features as input to output the probability of tumor being ‘Benign’ or ‘malignant’.
  + 93.4 % validation accuracy is achieved on this model.
* **Neural Network Classification Model from Scratch** 
  + The network performs supervsied learning tasks using labelled training data (X- Feature Array, Y- labels).
  + The model has dense layers and activation functions as parameters. It supports arbitary number of inputs, hidden layers, nodes per layer, and classes.
  + The model returns an estimated probabilities of the observation being in the classes, predicted class for each observation and a score function that returns model’s loss and accuracy.
* **Convolution Neural Network**
  + After 120 epochs the model reaches an accuracy of 97 % on training and 39 % on validation data on version one.
  + The model reports the *confusion matrix and classification report* of predicted validation set. A running graph of training and validation accuracy and loss is displayed with each epoch.
  + Dataset: CIFAR – 10 Training set: 50,000 images belonging to 100 classes; Validation Set: 10,000 images belonging to 200 classes.
* **Vehicle Classification** 
  + A ConvNet Model with **i**mage preprocessing to be training on vehicle data set to classify the data into 12 vehicle classes like ‘convertible’, ‘go-cart’, etc. mentioned in classes.txt.
  + The model reaches an accuracy of 100% on training and 55.5% on validation sets. The graph of model’s loss and accuracy per epoch is displayed.
  + The model reports the *confusion matrix and classification report* of predicted validation set.
  + Dataset: 600 vehicle images into 12 classes

**Machine learning**

Designing models that performs a specific task effectively without using explicit instructions, relying on patterns and inference instead.

* **Building Logistic Regression Model from Scratch in Python** 
  + It supports an arbitrary number of features inputs and will accept un-encoded class labels.
  + The predict method has a threshold for classification, which decides the predicted class, based on estimated probabilities of each observation.
  + The log- likelihood and accuracy of this model is calculated. We also calculate the precision and recall value for each class.
* **Tuning Model Hyper-parameters:** 
  + The model has 6 feature array (4 numerical variables and 2 categorical variables) and 4 labelled classes.
  + The features are scaled and encoded.
  + The data is modelled for Linear Regression, K nearest neighbor, Decision tress and Random Forest algorithms with a validation accuracy of 29 %, 89.6 %, 86% and 93.7 % respectively for tuned parameters.
* **Decision Tree Classifier from Scratch** withGini score is used as impurity matrix**.**
* **Random Forest Classifier from Scratch** which is an ensemble of decision trees.