


Profile Summary

- Software Engineer with a wealth of experience in web development, real-time communication, machine learning, data analytics, and drone automation, demonstrated in projects such as Twitter Clone, P2P chat program, and environmental drone monitoring.
- Talented Developer with broad technical proficiency encompassing programming languages (Python, C++, Erlang, SQL), as well as frameworks and libraries (Pandas, NumPy, TensorFlow, Scikit-Learn).
- Adept learner with the ability to quickly acquire and master new skills, and enthusiastic problem-solver confident in proposing original and ingenious solutions.
- Engaged collaborator with strong interpersonal skills, able to influence and align multiple teams with conflicting priorities to drive progress under aggressive time constraints.
- Ability to effectively navigate ambiguity, complexity and change when stakes and pressure are high, and lead without authority to overcome obstacles and ensure delivery.

Education

University of Florida  **M.Sc. in Computer Science**
Gainesville, FL, 2021-2023

RIMT  **BTech. in Computer Science**
Gobindgarh, Punjab, 2016-2020

Certifications

PCEP - Certified Entry-Level Python Programmer - Python Institute, 2021
Deep Learning Nanodegree - Udacity, 2019

Technical skills

Languages: Python, C++, Erlang, Java, R, Julia, SQL

Frameworks & Libraries: Pandas, NumPy, TensorFlow, Scikit-Learn, PyTorch.

Databases: PostgreSQL, MySQL

Dev Tools: Git, GitHub, Jupiter, VScode, Anaconda

Cloud & DevOps: Docker, Kubernetes, Azure

Languages

English, Hindi: Native

Punjabi: Conversational

Experience

Incubation/Research cell

RIMT University, Oct. 2018 - Apr. 2020

- Headed a project utilizing drones for automation of monitoring and data gathering processes pertinent to pollution control, while serving as the student coordinator from 2019-2020.
- Ensured smooth progress of student projects such as Plant disease AI, Encrypted communication program with a custom hardware key, and Custom POS for students, dealt with problem-solving, and facilitated issue resolution, impacting 8 projects.
- Led a project focusing on the use of drones for automating monitoring and data collection processes related to pollution control, including defining project objectives, goals, and constraints based on research and use case analysis.
- Designed and engineered an autonomous drone platform using Ardupilot that followed pre-configured flight paths for precise monitoring tasks, achieving a precision rate of 70%. The drone had a maximum payload capacity of 2.5kg due to the use of a custom frame, a self-made power distribution board, and high-torque brushless motors.
- Leveraged Luna and Python to program Raspberry Pi 2b with picam, DFrobot air quality sensor PM2.5, CO and H2S sensors, and GPS functioning for data gathering. Played a pivotal role as a core team member for the 2018-2019 Technology festival, organizing, planning, and executing various events which benefited up to 2500 participants.
- Earned a position among the top 50 teams in India at the Drishti competition organized by Texas Instruments in 2018, symbolizing distinction and recognition.
- Founded the Students Working for Advanced Technologies club at a departmental level, introducing state-of-the-art technology through seminars.

Software Projects

Twitter Simulator

Nov. 2022

- Successfully developed and deployed a web application similar to Twitter using Erlang's actor model programming paradigm. Incorporated real-time messaging capabilities using Erlang and an MVC design pattern, able to handle 500,000 requests impacting 5000 users simultaneously.
- Boosted user engagement and improved user experience by designing and implementing interactive features using Erlang, JavaScript, and CSS, following user-centric design principles.
- Ensured a high-performance, fault-tolerant, and scalable system architecture using Erlang, distributed systems principles, and the actor model paradigm, which resulted in optimal system uptime.

Chatting program with file transfer - P2P

Apr. 2023

- Developed an effective chat program with file transfer functionality using Python, computer networking principles, and a three-threaded system to facilitate seamless interaction and data exchange.
- Enabled real-time communication between multiple users and integrated file transfer capabilities within the chat program, allowing for seamless transmission of files in chunks of 1024 bytes.
- Applied socket programming and threading principles for reliable connections and concurrent execution of tasks, enhancing the program's overall efficiency and responsiveness.
- Managed TCP/IP connections for smooth data transmission and quick recovery of lost packets, and dedicated threads for connecting to clients, handling user inputs, and managing incoming messages.

Survival Prediction for Liver Cancer Patients

Apr. 2022

- Conducted a research study to predict survival rates for liver cancer patients using The Cancer Genome Atlas (TCGA) gene expression and clinical data.
- Utilized Kaplan-Meier survival analysis, Voom, and Glmfit methods to identify significant clinical features and differentially expressed genes in the study.
- Developed a predictive model employing machine learning techniques, with various classification algorithms tested on an 80:20 test-train split.

Sentiment Analysis

Jul. 2019

- Implemented a neural network sentiment analyzer using recurrent neural network (RNN) architecture, preprocessing techniques such as bag of words and tokenization, and trained the model on a dataset of 50,000 movie reviews.
- Developed a web application to provide real-time sentiment analysis on user-input movie reviews, utilizing AWS services including SageMaker, Lambda, and API Gateway for efficient deployment and data communication.
- Achieved a model performance accuracy of 90% on a test set of 10,000 movie reviews, demonstrating the effectiveness of the model in analyzing movie review sentiment.

Dog Breed Classifier

Jun. 2019

- Trained a Convolutional Neural Network (CNN) for image analysis to classify dog breeds and provide amusing results by identifying the closest resembling dog breed for human images.
- Established the need for an image analysis model that can distinguish between human and dog images, determined the closest dog breed resemblance, and defined model performance indicators such as accuracy, precision, and recall.
- Utilized Python and the Keras deep learning library to develop the model, which was trained on a dataset of over 100,000 images covering 133 dog breeds, achieving an accuracy of 84% while also taking into account precision and recall.