Kanishkha Jaisankar

jkanishkha0305 | jkanishkha | jkanishkha0305.github.io | f20190072@dubai.bits-pilani.ac.in | +971 56 196 4863

Education

- **Birla Institute of Technology and Science** — Dubai, UAE
  Bachelor's of Engineering in Computer Science — *Sep. 2019 – Aug. 2023*
- **Chettinad Vidyashram** — Tamilnadu, India
  Higher Secondary Education — *Apr. 2017 – Mar. 2019*

Experience

- **KPTAC Technologies** — Dubai, UAE
  Software Engineering Intern — *Feb. 2023 - Jul. 2023*
  - Performed Web Scraping of e-commerce data from various websites like Carrefour, LuLu, Waitrose using Scrapy framework, Selenium Web Driver and json extraction from hidden Api clients.
  - Designed and implemented spiders, item pipelines for automated data extraction, parsing and storing using Scrapy.
  - Performed data cleaning and preprocessing to ensure accuracy and consistency of scraped data.
  - Performed Data Analysis on cleaned data using PowerBI, pandas, NumPy, Matplotlib
  - Worked on medusa.js for headless CMS backend.
- **Sentient Labs** — Dubai, UAE
  Robotics Engineering Intern — *Jun. 2021 - Aug. 2021*
  - Developed a Robot application using ROS in AWS RoboMaker for obstacle avoidance and path planning.
  - Tested the robot application with Turtlebot in a simulation environment using AWS S3 bucket, Gazebo, Rviz.
  - Deployed the application to an edge device using AWS Greengrass IOT and established a ROS pipeline using AWS.
  - Containerized the robot application with Docker for improved portability and scalability.

Projects

Multi-Model approach for Autonomous Driving: Dec. 2022

- Developed Multiple Deep Learning Models to detect and classify Traffic signals, detect obstacles and detect lanes.
- Performed behavioural cloning of self-driving cars in simulated environments using neural networks.
- Performed comparative study with different models like Mask-RCNN, ResNet50, InceptionV3 and MobileNet.
- Designed a self-driving reinforcement learning model using Deep Q-learning in OpenAI Gym environment.
- Built an Autonomous driving vehicle using Jetson Nano, Arduino, Ultrasonic Sensor that can perform Lane Detection, Obstacle Avoidance and response to Traffic Signals using Deep Learning and Image Segmentation.

Application of DCNN for Visual Tracking of Mobile Robots using UAV: Dec. 2022

- Developed a Deep learning model to detect the mobile robot by training the model with custom datasets.
- Performed comparative study with different models like Faster-RCNN, SSD, YOLOv5 and YOLOv7 and chose the best-performing model for deployment into the dji Tello drone.
- Used PID controller and OpenCV to autonomously track and follow the mobile robot using dji Tello drone.

Fetal Health prediction from CTG Data using Ensemble learning: Sep. 2022

- Developed an Ensemble learning model to predict the health of the fetus during pregnancy from CTG data.
- Performed ensemble learning through bagging, boosting and majority voting classifiers approaches.
- Machine learning models like XGBoost, Adaboost, RandomForest, Decision Tree, Naive Bayes and SVM were used.
- 1D-CNN and Hybrid CNN+LSTM models were also developed to perform comparative analysis.

End-to-End Model to detect Covid-19 from Chest X-ray Images: Mar. 2022

- Developed a Hybrid Learning Model using CNN+LSTM to detect Covid-19 from Chest X-Ray images.
- Performed comparative study of proposed model with different models like Xception, VGG19, MobileNet.
- Developed a web app using HTML, CSS, flask framework and deployed the model in real-time using Heroku.

ASL Detection and translation system using Neural Networks: Mar. 2022

- Created a Custom CNN model to detect hand gestures using the American Sign Language system and translate it.
- Performed comparative study across different machine learning models SVM, LR, KNN, NB, DT and custom CNN.
- Used the concepts of OpenCV to predict and translate hand gestures from the live video.

Technical Skills

Languages	Python, C++, C, Java, Matlab
Web Technologies	HTML, CSS, Django, Flask, medusa.js
ML/AI	TensorFlow, Pytorch, Scikit-learn, OpenCV
Data Analytics	Numpy, Pandas, Matplotlib, Seaborn, Plotly, MySQL
Cloud Platforms	AWS, Azure, GCP
Miscellaneous	Docker, Linux, ROS, Jetson Nano, Arduino, Git, Scrapy

Relevant Coursework

• Data Structures • Foundations of Data Science • Machine Learning • Deep Learning • Artificial Intelligence • Data Mining • Neural Networks & Fuzzy Logic • Design & Analysis of Algorithms • Operating Systems • Compiler Construction • Database Systems • Theory of Computation • Computer Networks • Object Oriented Programming • Discrete Structures • Logic in Computer Science • Computer Architecture • Principles of Programming Languages

Achievements

• Winners of *Dubai World Police Summit 2023* Drone Challenge*, UAE.*
• Shortlisted for finals of the *Emirates Robotics Competition 2023, Dubai Future Foundation, UAE.*
• Shortlisted for top 20 finalists all over Arab nations in the *ITAS Arab Youth Competition 2023, Qatar.*
• Winners of *PIED CEL's Desert Hack Startup Competition 2022.*
• Winners of *ACM BPDC's Capture The Flag (CTF) Competition 2020.*
• Runner-up of *MTC BPDC's CodeBlitz Competition 2020.*
• Received Academic Scholarship for scoring *9+ GPA in continuous semesters.*

Publications

"Classification of Microstructure Images of Metals Using Transfer Learning".*MDIS 2022 8th International Conference, Sibiu, Romania, Springer 2022. (Published) doi: 10.1007/978-3-031-27034-5*

"An End-to-End Hybrid Learning model for detection of Covid-19 from Chest X-ray images".*Alliance Technology Conference-1-International Conference on Artificial Intelligence and Applications-2023, Bengaluru, India. (Accepted)*

"Multi-model approach for autonomous driving: A comprehensive study on traffic sign detection, vehicle detection, lane detection, and deep learning in Udacity Self-Driving Car Simulator".*Multimedia Tools and Applications, An International Journal, Springer 2023. (Under Review)*

Leadership

- **President**
  Aug. 2022 - Present
  IEI BPDC Student Chapter
- **Team Lead**
  Jun. 2022 – Present
  Team IFOR and Robotrix
- **Events Executive**
  Aug. 2022 - Present
  Flummoxed Quizzing Club
- **Assistant Vice Captain**
  Sep. 2022 - Present
  University Cricket Team
- **Technical Executive**
  Aug. 2021 - Aug. 2022
  Microsoft Tech Club, BPDC
- **Treasurer**
  Aug. 2021 - Jun. 2022
  Flummoxed Quizzing Club

Volunteering

• Conducted a Hands-on Robotics Workshop on *Arduino, Tinkercad, Microcontrollers, Sensors* and guided the students and faculties to build an *Obstacle Avoidance Robocar* .
• Conducted a Machine Learning Bootcamp, for high school students during the university STEM event 2021-22.
• Conducted a 2-day Hands-on Coding Workshop on *HTML, CSS, Javascript, GitHub Basics for university students* .
• Event Manager for *University Cricket Tournament, University Quiz Fests, STEM event, Spectrum-2022.*

Certifications

- **Self-Driving Cars Specialization**
  Issued April 2023
  University of Toronto
- **Deep Learning Specialization**
  Issued March 2023
  DeepLearning.AI
- **Machine Learning Specialization**
  Issued March 2023
  DeepLearning.AI
- **IBM Data Science Professional**
  Issued September 2022
  IBM
- **Google Data Analytics Professional**
  Issued August 2022
  Google

Miscellaneous

Co-Curricular activities: Robotics, Competitive Coding, Cricket, Quizzing, Finance and Investments, Painting, Football.
Languages: English, Hindi, Tamil, Telugu, German