Vaishak Melarcode Kallampad

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EDUCATION

- **San Jose State University, San Jose, CA** **Aug 2021 – Dec 2023**
  Masters , Software Engineering
  Relevant Coursework - Enterprise Software Platforms, Operating Systems, Object Oriented Programming (OOPs), Database Systems, Data Mining, Machine Learning, Cloud Technologies , Deep Learning, Software Systems Engineering – Design Patterns , Enterprise Distributed Systems, Reinforcement Learning

- **Government Rajiv Gandhi Institute of Technology, Kerala, India** **Aug 2014 – Jun 2018**
  Bachelor of Technology in Electronics & Communication Engineering
  Relevant Coursework – Digital Image Processing, Digital Communication Techniques, Neural Networks, Computer Architecture and Processing

WORK EXPERIENCE

Boson Motors Inc, Livermore, United States **Jun 2022 – Aug 2022**

Software Engineering Intern – Data Engineer

- Set up Data Pipeline and ETL infrastructure to collect and store ~2gb data/day from CAN bus and ROS topics into InfluxDB automatically.
- Created scripts for compressing 2-3 GB data to ~10-50 MB csv files for regular backup purpose.
- Developed Subscriber and Publisher model to analyze ROS topics from vehicle and automatically stop the vehicle on deviating more than 5m from its prescribed path in autonomous mode.
- Tested and improved autopilot feature using Grafana to visualize data, detect anomalies and devise real-time alerts.

Tata Consultancy Services Ltd, Bangalore, India **Nov 2018 – Jun 2021**

Software Engineer

- Designed and tested signaling systems particularly Automatic Train Control systems (ATC) for metro rails.
- Automated safety critical tasks deploying Python scripts and thereby reduced ~5 man-days work per project .
- Performed data analysis to optimize design of metro track layouts and cut down costs encountered by ~23%.

CERTIFICATIONS

- **Machine Learning** - authorized by Stanford University from Coursera

SKILLS

- **Backend:** Python , C++ , Java , PHP , NodeJS , ExpressJS
- **Frontend:** HTML , CSS, JavaScript
- **Database:** MySQL, Microsoft SQL, PostgreSQL , InfluxDB, MongoDB **;**
- **Frameworks/Tools:** REST API, Junit, jQuery**,** Microservices, Agile, Scrum, Docker**,** Linux, ROS, AWS, Hadoop **;**
- **Artificial Intelligence:** Regression, Decision trees, SVM, KNN, K-Means Clustering, NLP, TensorFlow, PyTorch, OpenCV, YOLO, YOLACT, GANs, Transformers, Deep Q Networks, Policy Gradients - PPO.

ACADEMIC PROJECTS

- **CyberStream** **Jan 2023 – Dec 2023**
  Setting up a reliable, real-time websocket communication channel for a Robot-as-a-Service platform facilitating the robots to play soccer autonomously. Challenges include processing and bi-directional transfer of multimodal data in real-time with low latency.
- **Accent Attenuation** **Aug 2022 – Jan 2023**
  Using various deep learning frameworks and speech processing techniques to convert accented english speech samples to non-accent speech. The experiments focus on converting Asian accented english speech to native english speaking accents.
- **Dog Breed Identifier** **Aug 2022 – Dec 2022**
  Deep Learning model to identify 133 different breeds of dogs in real-time. Has been built using transfer learning on 4 different models - VGG19, Resnet50, InceptionV3 and Xception.
- **Spartan Quality Assurance Tool** **Feb 2022 – May 2022**
  A test case and bug management toolkit revolves around streamlining the entire process of testing, primarily for managers, developers, test leads and testers. Designed the database for this app.
- **Ted Talk Recommender** **Feb 2022 – May 2022**
  Designed a recommender system with Ted Talk transcripts and related tags for ted talk. Predicted and displayed as recommendation 5 most similar talks based on a given Ted talk.
- **Autonomous Vehicle Rental System** **Feb 2022 – May 2022**
  A ride-hailing platform for Autonomous Vehicles. Simulated autonomous ride using CARLA. Web application was created using the MERN stack and deployed on AWS-EC2 with Elastic Load Balancer.
- **Music Artist Identification** **Feb 2022 – May 2022**
  Build a deep learning model to identify song artists using MFCC features. Created own training data from scratch and tried different architectures - ANN, CNN and RNN(LSTM) models.
- **Barks & Meows** **Aug 2021 – Dec 2021**
  An interactive website for a cafe exclusively for pet lovers. Microservices include Signup/Login, advertising product details using APIs, tracking recently visited products and most visited products using Cookies,and adding review and ratings.