Sakshamdeep Singh

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Education

University at Buffalo, The State University of New York Aug 2022 – Jan 2024
Master of Science (M.S.) in Artificial Intelligence, ***GPA: 3.93/4.00*** *Buffalo, New York*

- **Coursework**: Machine Learning, Pattern Recognition, Deep Learning, Computer Vision, Data Intensive Computing, Big Data Analytics, Biometrics Image Analysis, Reinforcement Learning, Robotics Algorithms

Birla Institute of Technology & Science, Pilani Aug 2015 – May 2019
Bachelor of Engineering (B.E.) in Electronics and Instrumentation *Pilani, India*

Skills

Languages: Python, Java, SQL, R, HTML, CSS, JavaScript, C, MATLAB
Database Systems: SQL (PostgreSQL), NoSQL (MongoDB, Elasticsearch), Other (Apache Kafka, RabbitMQ, HDFS)
Developer Tools: Git, Linux, BitBucket, CI/CD, Jenkins, SonarQube, Jira, GCP, AWS, VS Code, Eclipse, Postman
Framework & Libraries: PyTorch, Keras, TensorFlow, OpenCV, NLTK, Hadoop, MapReduce, Spark, ROS, NumPy, Pandas, Scikit-Learn, Matplotlib, Scipy, Scrum, Agile, SpringBoot, LDAP, WSO2, Vert.x

Experience

Software Engineer II July 2019 – Aug 2022
Wipro *Bengaluru, India*

- Built the core backend functionalities for the **Cisco Kinetic for Cities** (CKC) project, a smart city IoT solution
- Applied modern application development practices, such as designing **scalable microservices architecture**, implementing **distributed computing**, and creating **low latency messaging** applications
- Developed more than **50** REST API endpoints across **5** microservices handling a throughput of **1k req/sec**
- Executed performance testing and spearheaded development of **geospatial queries** for PostgreSQL and Elasticsearch, managing datasets of over **10 million records**
- Implemented **role and location-based access** by intercepting HTTP and Websocket requests
- Employed **Mockito** and **PowerMock** frameworks to write thorough unit and integration tests, resulting in a test coverage exceeding **90%**
- Collaborated seamlessly with **cross-functional teams** and cross-trained new team members to promote versatility and flexibility within team
- Earned a **promotion** and the **Best Performer** trophy for outstanding contributions

Software Intern July 2018 – Dec 2018
UST *Trivandrum, India*

- Developed REST APIs using **Model-View-Controller** design pattern leveraging SpringBoot and microservices
- Assisted in data extraction from Facebook and Twitter as part of Sentiment Analysis Team, and gained experience in **analyzing sentiments** using **Bag-of-words** and **Tweepy**

Academic Projects

Efficacy of Ear Images for Biometrics Identification | *PyTorch, OpenCV* [code][report][ppt]

- Executed the **YOLOv8** model for ear detection, utilizing a custom annotated dataset to train it
- Evaluated recognition performance of various deep learning models including **VGG16** and **ResNeXt50** on the **EarVN1.0** dataset (164 classes), attaining an impressive recognition accuracy of **83%**

Multi-Aspect Facial Analytics | *OpenCV, DeepFace, face-recognition* [code][report]

- Integrated and executed diverse facial analysis tasks, including face detection, sentiment analysis for emotional tone, gender classification, face pose estimation, and face recognition

Laser-Based Perception and Navigation with Obstacle Avoidance | *Python, ROS, Gazebo* [code]

- Applied **RANSAC** algorithm in a simulated Gazebo environment to facilitate robot localization alongside employing **BUG2** algorithm to navigate while avoiding obstacles

Neural Networks and SVM Comparison on MNIST and CelebA | *PyTorch, Sklearn* [code][report]

- Implemented a neural network achieving **95.09%** test accuracy on MNIST through **hyperparameter tuning**, applied to CelebA dataset for **83.57%** accuracy. Compared deep neural network (**92.8%**) and convolutional neural network (**99.1%**) on MNIST, with CNN outperforming ANN
- Utilized **SVM** with RBF kernel (**C=10**) for **98.34%** test accuracy on MNIST