Sampreet Vaidya

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2+ years of experience with a proven track of delivering results. Deployed advanced ML techniques driving 54% reduction in prediction error. Minimized video stalling time by 80% using RL-based parameter selection. Acceptance of my work at reputed conferences reflects my problem-solving ability and result-oriented mindset.

EDUCATION

Master of Science (MSc.) in Software Engineering – University of Calgary
Focus: Software Systems, Machine Learning, Data Analytics, Statistics, Agent-based Software, IoT

EXPERIENCE

Telus Communications **May 2023 – Dec 2024**
Research Intern (Content Delivery team)

- Contributed to the development of custom testbed based on Javascript-based streaming player (Shaka) using puppeteer in docker. Collaborated with cross-functional teams to enhance performance.
- Developed code for adaptation algorithms in a python-based streaming player within Docker environment. Streamlined CI pipelines with GitHub Actions and implemented unit tests using Pytest.
- Led Reinforcement Learning (RL) integration to dynamically select parameters for adaptations. Reduced buffering (stalls) by up to 56%, under different testing environments.

University of Calgary **May 2022 – Dec 2024**
Research Assistant

- Worked in Waves Lab on novel frame size prediction and frame compression techniques in cloud VR systems.
- Implemented machine learning (ML) algorithms for frame size prediction using scikit-learn and TensorFlow to enable resource allocation in cloud VR server. Achieved 54% improvement in QoS metrics.
- Developed a compression technique for 8K VR frames using a generative model (VAE-GAN) in PyTorch, achieving up to 45.1% data reduction while maintaining compatibility with existing video infrastructure.
- Carried out experiments, trained models, documented results to suggest optimal algorithms and configurations.

Machine Learning Intern

- Designed SQL queries to extract data from large-scale network traffic data on MySQL database.
- Conducted exploratory data analysis (EDA) on frame-level data of network using Python (pandas, NumPy).
- Assisted team members on corresponding research projects involving channel prediction for BCI.

PROJECTS

VR Network Traffic Prediction IEEE.com/VRTrafficPrediction

- Analyzed different ML base models with transfer learning method to predict cloud VR network traffic patterns.

LLM-based job profile analyzer github.com/LLM-resume

- Leveraged Large Language Model APIs to analyze a candidate's job profile and resume to identify missing skills.

Predictive Maintenance blog.com/predMaintenance

- Analyzed oil well data using statistical methods to predict equipment failures, achieving an F1 score of 0.953—among the highest on Kaggle.

SKILLS

Programming Languages: Python, R, Shell scripting, SQL, Java, HTML, Javascript
Tools: MySQL, Tableau, Docker, GCP, Git, Databricks, AWS Bedrock, PyTest, Jira, Power BI, Spark, LangChain
Libraries: PyTorch, TensorFlow, NumPy, Pandas, Scikit-learn, XGBoost, Huggingface, Transformers

TEACHING

Teaching Assistant **Sep 2022 – Aug 2024**

Full Stack Development

- Assisted students in front-end and back-end frameworks like CSS, React.js, Flask, and Bootstrap.
- Facilitated learning of CI/CD practices using tools such as Jenkins and GitLab.

Introduction to Data Engineering

- Guided students from various engineering disciplines in machine learning fundamentals.
- Provided support in data analysis techniques, including data acquisition, cleaning, validation, and visualization with Pandas, NumPy, Scikit-learn, and Matplotlib.

Industrial IoT and Data Analytics

- Helped students grasp concepts like model compression, efficient deep learning, transfer learning, and federated learning.
- Assisted students with their projects on automated ML, TinyML, and deployment of models on edge devices.

AWARDS AND ACHIEVEMENTS

- *Presentation at Reputed International Conferences:* Research work presented at IEEE GLOBECOM Malaysia and will soon present at IEEE WCNC, Italy.
- *Graduate Student Research Impact Excellence Award (2024):* Recognized for outstanding contributions to the Schulich academic research community.
- *ESE Department Graduate Student Travel Award (2023):* Received monetary assistance to support conference travel for presenting research work.
- *International Graduate Tuition Award (2022–2024):* Monetary assistance per year to support tuition as an international student at the University of Calgary.

REFERENCES

Available upon request