NEELAM RAI

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PERSONAL SUMMARY

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EDUCATION

Master of Predictive Analytics (Data Science) | Curtin University | Bentley, WA | 2022 – 2024
ICT Professional Year Program (In progress) | National Institute of Technology | WA |2024 – 2025
Bachelor in Science and Technology (Physics) | Tribhuvan University | Nepal | 2013 – 2018

TECHNICAL SKILLS

Analytical Tools: R, SQL, Excel
Language: Python, R, SQL
Technologies / Frameworks: TensorFlow / Keras, PyTorch, Scikit-learn, Matplotlib / Seaborn, MobileNetV2, t-SNE, Jupyter Notebook, VS Code, Google Colab

WORK EXPERIENCE

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ACADEMIC PROJECTS

BLEVE Pressure Prediction 2023
Course: Explainable Approaches to Machine Learning

- Developed a machine learning model using neural networks (Python) to predict pressure build-up in BLEVE (Boiling Liquid Expanding Vapor Explosion) scenarios.
- Focused on interpretability using explainable AI methods to identify influential features affecting pressure levels.
- Demonstrated ability to model complex physical systems using predictive analytics.

Reacher Environment – Reinforcement Learning Algorithms
Course: Reinforcement Learning

- Applied Deep Q-Network (DQN), Actor-Critic, and Policy Gradient methods to train agents in a simulated control environment.
- Explored dynamic learning under uncertainty, aligning with progressive damage modeling in fatigue analysis.
- Strengthened Python programming skills using TensorFlow/PyTorch frameworks.

Identification of Age Groups from Heart Rate Variability Data Using Convolutional Neural Network
Course: Computer Science Project 2

- Built a Convolutional Neural Network (MobileNetV2) to classify age groups based on heart rate variability (HRV) data.
- Used t-SNE for high-dimensional data visualization and feature space analysis.
- Demonstrated end-to-end ML pipeline development, from preprocessing to interpretability.

K-means cluster analysis of the Amazon Fine Food Reviews dataset
Course: Decision Methods and Predictive Analytics

- Performed K-means clustering on customer review data to identify patterns in preferences.
- Applied unsupervised learning for large-scale data interpretation using R.
- Built a foundation for feature engineering and pattern detection in complex datasets.

Data Mining – Model Training and Evaluation
Course: Data Mining

- Preprocessed datasets, implemented supervised machine learning models, and evaluated predictions using Python and SQL.
- Focused on classification techniques and model validation procedures.
- Gained practical experience with the full machine learning cycle.

CERTIFICATIONS

Mathematical Foundations of Machine Learning | Udemy | In Progress
Complete Data Science, Machine Learning, DL, NLP Bootcamp | Udemy | In Progress
Microsoft Power BI Desktop for Business Intelligence | Udemy | In Progress
PL 300: Power BI Data Analyst | Percipio | In Progress
AWS Academy Cloud Foundations | AWS Academy Graduate | May 2024

REFERENCES

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