Alexis Anzaldo

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SKILLS

- Programming: Python (Numpy, Pytorch, Matplotlib, Pandas, Seaborn), SQL, HTML/CSS.
- Tools: Microsoft Office, Power BI, Matlab, Labview.
- Spanish: Native. English: B2.

PROJECTS

Deep Reinforcement Learning for resource allocation in wireless networks

- Accelerated the learning of the conventional Deep Q-Network model for power allocation in wireless networks by up to 77% and improved the network performance by up to 24.7% by proposing different training strategies with transfer learning. Simulations were performed using Python (Numpy, Pytorch, and Matplotlib).
- Conceptualized, analyzed, and wrote three published refereed articles in top journals from Q1 and Q2 in the computer science area.
- Conducted a systematic review methodology and identified the 56 most relevant research works implementing machine learning for resource allocation. Performed data extraction, cleaning, and visualization using Excel.

San Diego home price prediction

- Collected and scraped data using BeautifulSoup and preprocessed it by cleaning, handling missing values, and detecting outliers with Python (Pandas, Numpy, and Matplotlib).
- Trained a regression model and achieved an accuracy score of 83.7% using grid search with scikit-learn in Python.
- Deployed the trained model on a Flask server to make predictions and hosted it on a web page using HTML/CSS.

Recognition of eye diseases with neural networks

- Designed a convolution neural network with 89.2% accuracy for detecting ocular diseases using the ODIR-5K database of the Kaggle platform using Python (Numpy, Keras).
- Managed and planned teamwork tasks for the preprocessing stage involving image formatting, data cleaning, and data augmentation for unbalanced classes.

Explainable AI (XAI) for beer brand classification

- Implemented GRAD-CAM, an explainable AI method, to interpret the Convolutional Neural Network (CNN) decision-making for beer brand classification.
- Fine-tuned the pre-trained VGG16 CNN architecture with additional layers to achieve an accuracy of 91.6%. Data augmentation, preprocessing, and training were performed using libraries such as Keras, Sklearn, and Numpy.

EXPERIENCE

Intern - Amphenol TCS de México S.A. de C.V Ago. 2016 - Oct. 2016

- Evaluated and reported the final defects of the production line. Prepared, corrected, and translated work instructions for operators.

EDUCATION

Ph. D. in Science and Engineering 2019-Current
Universidad Autónoma de Baja California – Mexicali, Baja California, México

M. S. in Science and Engineering 2017-2019
Universidad Autónoma de Baja California – Mexicali, Baja California, México.

BS in Electronics Engineering 2016
Universidad Autónoma de Baja California – Mexicali, Baja California, México.

CERTIFICATIONS

- Practical Data Science on the AWS Cloud Specialization, Amazon Web Services (AWS), Online. May 2023
- Google Data Analytics Professional Certificate, Google, Online. May 2023
- Reinforcement Learning with Pytorch, Udemy, Online. Oct. 2022

PUBLICATIONS

- Accelerated Resource Allocation Based on Experience Retention for B5G Networks, *Journal of Network and Computer Applications*, https://doi.org/10.1016/j.jnca.2023.103593
- Experience Replay-based Power Control for Sum-rate Maximization in Multi-cell Networks, *IEEE Wireless Communications Letters*, https://doi.org/10.1109/LWC.2022.3202904
- Buffer Transference Strategy for Power Control in B5G-Ultra-dense Wireless Cellular Networks, *Wireless Networks*, https://doi.org/10.1007/s11276-022-03087-6