ANDRÉS CAMILO CARVAJAL S.

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EDUCATION

ANDES University UNIANDES Bogotá D.C, Colombia
Master of Science in Civil Engineering (STEM), Emphasis in Geotechnical Engineering Jun 2021
Advisor: PhD. Nicolas Estrada Mejia;
Thesis: *"Why the landslide size is a characteristic of fractal behavior?"* http://hdl.handle.net/1992/52990
Coursework: Statistics, slope design workshop and containment structures (Data visualization), workshop of numerical tools in geotechnics, continuum mechanics and models constitutive (MATLAB and Python), alternative energy, modeling and behavior of pavements (MATLAB), granular media physics and mechanics (FORTRAN), physical geography (GIS).

Pontifical University UPB Bucaramanga, Colombia
Advisor: PhD. Sandra Rocío Villamizar; 2017
Bachelor of Civil Engineering;
Thesis: *"Waste utilization scheme common solid points for the UPB under the concept of circular economy"* 5.0/5.0

EXPERIENCE

CAREL USA Roswell, GA
Software Developer, Automation Engineer Jun. 2022 – Present

- Designing and developing solutions for HVAC control systems.
- Responsible for the design and development of HVAC/R software solutions using programmable controllers and established product platforms.
- Support and troubleshooting to customers for CAREL products and software solutions.
- Deployment and production full stack applications with Programmable Controls and Electronics.
- Time Series Forecasting using PROPHET and SARIMA for revenue data.
- HTML, CSS, JavaScript, Python, and structured text.

MR INGENIERIA Bucaramanga, Colombia
Consultant Dec. 2019 – July 2020

- Consultant in control, programming, and execution activities that include construction of roads and oil facilities of Contract No.3019382 - Service Order 004 construction works (civil, mechanical, electrical, and instrumentation) required in the development of the projects, for the Transportation Development Management of the Vice-Presidency of ECOPETROL S.A using GIS software.

Urban Development Institute of Bogotá D.C. IDU Bogotá D.C, Colombia
Civil Engineer Mar. 2019 – Nov. 2019

- Performed creation, conversion, translation, migration, and import of GIS data from various sources to the entity GIS (SIG-IDU).
- CAD and GIS to update existing records and make changes as necessary.
- Python scripting for data visualization, creation of reports, statistics, spatial data manipulation, and writing new files (txt, CSV).

FEATURED PROJECTS (more details at *https://andresca94.github.io/*)

Summarization and translation from YouTube videos using mT5 transformers.

- Multilanguage speech recognition using Whisper.
- Language identification with Pypi
- Fine-tuned Mt5 model to summarize and translate the recognized text from the video.

MasterCard stock price time series forecasting using LSTM and GRU

- Preprocessed dataset from May-25-2006 to Oct-11-202
- Built machine learning models to predict the stock price using LSTM and GRU.

Simple-Movie-Recommender from IMDB movies dataset

- Tokenized, vectorized text data using TF-IDF and cosine similarity to get a content based recommender and credits, genres, and keywords based recommender.

Multiclass prediction and clustering for music genre

- Data cleaning, handling entropy, feature engineering and data visualization.
- Encoding categorical data and preprocessing dataset.
- Trained XGboots, Random Forest and Logistic Regression, checking accuracy and confusion matrix to select the best model.
- Feature importance, ROC curve and SHAP values for explainability.
- Finding the appropriate K-values with elbow method, balancing the dataset after feature selection and evaluating K-means visually with PCA.

NLP-Flask App

- Converting categorical variables to numerical, Iterating through all the text and using regular expression to clean the data,
- Train-test splitting, model creation and prediction using Multinomial Naïve Bayes, confusion matrix, vectorizer and inverse transform to get the language prediction.

Motor-Colission-App-Streamlit

- Load and clean Motor Collision in New York City dataset.
- 3D map and data visualization to respond “Where are the most people injured in NYC?" and “How many collisions occur during a given time of day”, Breakdown by minute and affected type ['Pedrestrians','Cyclist','Motorist']
- Front end using Streamlit.

SKILLS

Programming: Python (NumPy, Pandas, Scikit-learn, TensorFlow, PyTorch), SQL, MATLAB, GIT, BASH.
Front-end: HTML, CSS, JavaScript, Vue JS, Streamlit.
Back-end: Flask.
Visualization and Statistical Software: Excel, Python (Matplotlib, Seaborn), Figma, Adobe PS, ArcGIS.
Machine Learning: Regressions, Random Forest, XGBoost, Unsupervised Learning (Clustering, PCA), Deep Learning

CERTIFICATIONS

- **University of Toronto** – Coursera - 5 Courses - GIS, Mapping and Spatial Analyst tools Specialization Certificate. *coursera.org/verify/specialization/AMXMKL9G5FT6*
- **University of Michigan** – Coursera - 5 Courses - Python for Everybody Specialization Certificate. *coursera.org/verify/specialization/MR4M59AABVW4*