Sandro Luis R. Silva

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EDUCATION

With over 8 years of experience in the energy and financial industries as an Analytics Officer, I have a proven track record of developing portfolio optimization tools, conducting financial and risk analysis, and providing data-driven recommendations. My expertise in Python and other data analytics tools has enabled me to streamline forecasting, increase the visibility of forecasted revenues, costs, and margins, and effectively communicate my findings to diverse stakeholders. I am seeking opportunities to apply my data science and analytical skills to enhance business analytics and data science practices.

EDUCATION

Asian Institute of Management — Mar 2019-Jul 2020

M.Sc. Major in Data Science — Makati, Philippines

- *Dean's List for 1st Term, 3rd Term, and 4th Term*
- *Capstone: Automation of Fall Risk Assessment and Intervention Recommendation with Healthcare Company*

College of the Holy Cross — Sept 2009-May 2013

B.A., Double Major in Mathematics and Economics — Worcester, MA, USA

TECHNICAL SKILLS

Programming Languages and Packages: Python (scikit-learn, keras, tensorflow, pytorch, beautifulsoup, selenium, numpy, pandas, scipy, matplotlib, seaborn, bokeh, plotly, dask, apache-spark, airflow, networkx, omnx, flask, jinja), HTML, CSS, and Javascript

Databases: SQL, Postgres, sqlite3

Other Software/Tools: Tableau, PowerBI, Cloud (AWS Services, GCP Services), Git

WORK EXPERIENCE

Aboitiz Power Corporation — Jul 2022 - Dec 2022

Analytics and Optimization Manager

- Led the development and utilization of a Python-based revenue modeling process for the company's 11 thermal power plants, with a total capacity of 3,524 MW. The updated framework streamlined the forecasting of the Php 27 billion thermal power plant budget. The updated model also resulted in a decrease in turnaround time by 66%.
- Developed Python-based data pipelines, integrated with Google API, to download market data from websites for use in BI tools such as Google Data Studio and PowerBI.
- Led the analytics and optimization team in creating a monthly energy market report for upper management by utilizing Google Services and PowerBI.
- Conducted macroeconomic and customer sensitivity analyses, using Python and Excel, on the thermal energy portfolio (valued at Php 27 billion for 2022) to identify potential downside risks.
- Collaborated with Finance, Energy Trading, Energy Sales, and Operations teams to identify actual/budget variances and created monthly reports outlining profitability risks and possible action items.
- Procured emergency energy supply for instances where demand requirements were not met by the coal power plants (potential maximum of 1,500 MW). Collaborated with energy trading and sales teams to coordinate the process.
- Monitored physical and financial hedging contracts for coal (Newcastle) prices and foreign exchange (FX), and coordinated with Pricing & Risk Management team if it was necessary to execute additional physical and financial hedging contracts.

TeaM Energy Corporation — Nov 2021 - Jul 2022

Data Analytics and Digital Solutions Manager

- Developed a roadmap pipeline for the company's digital transformation initiative, focusing on the areas of Energy Trading, Energy Sales, Finance, and IT by conducting feedback sessions with different stakeholders. Established a 5-year timeframe for the initiative, with yearly milestones and deliverables.
- Led a cross-functional team in assessing and designing AWS and Salesforce ecosystems with vendors.
- Collaborated with Energy Sales and Energy Trading teams to prioritize and scope use cases, and guided the IT team in designing possible data solutions and architecture.
- Audited data quality of the company's different data sources.

AIA Philippines **Mar 2021 - Oct 2021**

Financial Risk Consultant

- Acted as a liaison among Finance, IT, and Risk and Compliance teams to ensure compliance with group policies and effective implementation of risk and compliance projects.
- Collaborated with Actuarial and Product teams in creating risk analyses to improve product mix and profitability by mitigating operational and financial risks. Results were recommended to upper management for implementation.
- Coordinated with the IT team as a point person for the company-wide data governance project, working alongside the Risk and Compliance team to improve the overall data quality.
- Led review sessions with Finance and IT units to ensure compliance and identify opportunities for improvement.

Aboitiz Power Corporation **Sept 2013 - Oct 2020**

Innovations Programs Manager Jun 2020 - Oct 2020

- Developed and implemented standard innovation guidelines and policies to foster an innovation culture company-wide, resulting in an average of 1-2 innovation projects created per department.
- Led innovation campaign to assess project risks, resources, and impact, prioritizing and allocating resources effectively.
- Assisted VP of Innovations in evaluating program design and implementation effectiveness using a Google data studio dashboard.
- Promoted innovation capacity building in business units and teams, aligning use cases with business objectives.

Margin Optimization Specialist Jan 2017 - Jun 2020

- Led the development of a portfolio optimization decision tool, using Python, that forecasted the financial positions for both thermal and non-thermal power generation portfolios (3,000 MW capacity), amounting to a budget of roughly Php 21 Billion annually. Simulations were used to manage the optimal level of contracting, revenues, cost of goods, and gross margins, which were used for budgeting, strategic planning, and market studies.
- Provided industry research to Business Development units, resulting in successful business development efforts for the Therma Visayas (680 MW), Therma South (260 MW), and Pagbilao Energy (200 MW) thermal power plants. Contributed to the company's growth, elevating its portfolio to become one of the top 3 players in terms of capacity in the Philippine market.
- Applied quantitative analysis techniques (computing Value-At-Risk via monte-carlo simulation using Excel and Python) to identify high-risk areas in the energy portfolio and developed strategies to minimize exposure. Implemented proactive risk management measures, such as monthly risk and business continuity assessments, resulting in reduced potential losses.
- Provided customer research and segmentation to Energy Sales, resulting in high utilization rates for the retail energy portfolio.
- Conducted research on local and global energy industry trends, including the feasibility of renewable energy (Solar and Wind) and liquefied natural gas (LNG). The research was used to inform business development efforts and assess the economic viability of renewable energy and LNG options.
- Created automated web scraping scripts using Python to extract pertinent data from websites and databases.

Market Analyst Sept 2013 - Jan 2017

- Assisted the Marketing Manager to develop the semi-annual budget forecasts, using Excel, for the power generation and retail energy units (capacity of roughly 2,000 MW). Budgets were utilized by power generation and retail energy units for yearly strategic planning and decision-making.
- Led the successful migration of the semi-annual budgeting process for the power generation and retail energy units from Excel to Python, resulting in a significant reduction in turnaround time and improved efficiency. The migration process reduced the budgeting timeline from 1 month to just 2 weeks, resulting in a 50% decrease in turnaround time.
- Created and managed automated web scraping scripts using Python and MySQL, improving the efficiency of data collection and decision-making processes.
- Created what-if scenario analyses to evaluate the impact of potential market changes and mitigate risks in the energy portfolio.
- Collaborated with Energy Sales and Business Development units, providing industry research, simulations, and insights for pricing strategies and feasibility studies.
- Delivered weekly energy market reports to upper management, highlighting the latest industry developments and movements.
- Collect and consolidate market intelligence data on power plant status in the grid, including planned and forced outages, commissioning and testing status, project developments related to new players, power plant ownership, and affiliate relationship

PRIVATE CONSULTATION

Consulting Data Scientist for AIM MSDS Capstone with Healthcare Company **Dec 2019 - Jul 2020**

This project involved working with a Healthcare company to automate the fall risk assessment and development of personalized intervention recommendations. The Capstone project requirement is for the AIM M.Sc. in Data Science program, which exposes the students to the end-to-end data science consultation pipeline - including writing project proposals, data extraction, data mining, building ML/AI models, and finally model/platform deployment. This project is subject to a non-disclosure agreement, and therefore, details and results cannot be shared in this resume.

Consulting Data Scientist for NRC-CCAR Dashboard Project **Jun 2020 - Jul 2020**

The project involved working with National Resilience Council (NRC) and Coastal Cities at Risk (CCAR) to create a web app for partner LGUs that provides maps and epidemiological outbreak analysis to monitor COVID-19 status. The tasks included developing the front-end design of the web app and creating a data visualization tool to monitor doubling time.

Consulting Data Scientist for Content Analysis on Vaccines Project **Jun 2020 - Jul 2020**

Collaborated with the Philippine Council for Health Research and Development (PCHRD) on a project analyzing Twitter conversations about vaccines following the Dengvaxia issue in the Philippines. Conducted temporal social network analysis on a dataset of tweets related to Dengvaxia, dengue, and vaccines to identify influential communities and stakeholders over time.

Consultant for Mathematical Modelling for Health Facility Planning for the Philippines **Feb 2020 - Mar 2020**

The project aimed to determine the required number of health facilities for the next 25 years, identify allocation criteria for government investments, and develop a tool to calculate resources needed for the Universal Health Care Law per province from 2020 to 2040. The tool was created using Google and focused on specified diseases.

PROJECTS

Network Science, An Application of Weighted K-Shell Decomposition in Public Procurement, ***2020***

The PhilGEPS database was analyzed using network analysis to identify any preferred suppliers for different government agencies. An undirected bipartite network was used, consisting of 19 government departments and 51,000 awardees, and a weighted k-shell decomposition was applied to identify the k-core of the network. The analysis revealed that the industries with the highest contract amounts were Information Technology, Construction, Automobiles and Fuel, and Pharmaceuticals. Additionally, it was found that some small and unknown companies had won numerous contracts, indicating a potential sign of a preferred supplier.

Deep Learning, Predicting Solar Power Generation ***2020***

A web scraper was used to collect hourly solar power plant data for four solar power plants in the Luzon and Visayas Grid. Multiple deep learning algorithms were implemented to create a model with the lowest MAPE (Mean absolute percentage error), and a 2-layer LSTM model was found to have the lowest error. The resulting model increased accuracy by an average of 70%.

Big Data and Cloud Computing, Tips on Getting the Big Tip ***2020***

Regression analysis was conducted on the New York Taxi Dataset, consisting of 2 million observations, to identify ways to maximize the tipping amount for taxi drivers. A linear regression model with L1 regularization was found to have the highest accuracy and interpretability. The top predictors included pickup and dropoff locations, with airports (LaGuardia and JFK) and famous locations (Financial District, Times Square, Penn Station, and Madison Square Garden) being the most significant factors determining tip amount. The study's aim was to help taxi drivers make more informed decisions to maximize their tip generation.

Machine Learning, Predicting Mood and Polarity of Articles ***2019***

A web scraper was developed to collect 5,735 Rappler articles, which were used as a training set to model two classification algorithms. The models were developed to predict the dominant mood and polarity of an article, based on metadata such as category, author, and mood ratings. The resulting models were found to predict article polarity with 72% accuracy and dominant mood with 51% accuracy, which was significantly better than baseline values of 16% and 68%, respectively.

Data Mining and Wrangling, Discovering Underlying Themes ***2019***

A web scraper was used to collect over 11,000 news articles from Rappler's national section, which were then analyzed using various methods such as TF-IDF weighting, Latent Semantic Analysis, and k-means algorithm. The analysis revealed ten clusters, with President Rodrigo Duterte being the dominant one, while the others covered topics such as government, police, weather updates, and national issues.

SHORT COURSES/CERTIFICATIONS

Certifications:

- *Financial Markets (with Honors) - Yale University (via Coursera, issued Apr 2023)*
- *Business Analytics for Strategic Decisions - the National University of Singapore (Via Emeritus, issued Feb 2022)*
- *Python for Everybody Specialization - the University of Michigan (via Coursera, issued Feb 2021)*