

ANDREW BOOMER

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EXPERIENCE

Kevala Inc.

📍 San Francisco, CA

Senior Data Scientist

📅 Mar 2024-Present

Data Scientist

📅 Jun 2022-Mar 2024

- Led the development and implementation of a large-scale nodal production cost model using PyPSA for optimal power flow, leveraging Ray to parallelize and achieve a 120x reduction in compute time
- Further developed the production cost model to empower users to independently execute optimization runs with a high degree of parameter flexibility, facilitating self-service planning and cost estimation
- Developed a terabyte-scale demand forecasting model incorporating nsrdb weather and sup3rcc climate data to improve prediction accuracy
- Deployed the demand model using Ray and Kubernetes on GCP to achieve substantial improvements in scalability and performance
- Designed network topology pipelines for nodal AC power flow simulations, contributing to the development of a fully traced consumption-based carbon accounting system
- Led project scoping and technical development of production-ready code for advanced energy analytics and optimization solutions, leveraging expertise in statistical methods and energy market fundamentals

Sust Global

📍 San Francisco, CA

Consulting Data Scientist

📅 Mar 2022-Jun 2022

- Developed tools to automate the retrieval and analysis of datasets from Google Earth Engine, improving efficiency and scalability
- Engineered a scalable pipeline for training, inferencing, and tracking a spatiotemporal emissions prediction model, enabling more efficient and robust emissions monitoring and forecasting

EnergyGPS

📍 Portland, OR

Energy Markets Analytics Associate

📅 July 2018–July 2019

- Delivered actionable insights to Fortune 500 clients by conducting energy market asset revenue valuations using Python, SQL, and VBA.
- Developed a scheduling optimization model for a grid-scale battery to predict co-optimal bidding strategies in energy and ancillary markets (CAISO, ERCOT, etc.). This model provided revenue estimates for use in PPA contract negotiations
- Analyzed energy market trends, leveraging ISO nodal protocols to interpret auction design, and provided insights to inform client reports and keep industry professionals up-to-date on market dynamics

Earth Economics

📍 Tacoma, WA, USA

Research Assistant

📅 Nov 2017–March 2018

- Conducted literature reviews, verified data quality, and constructed datasets to support the development of data-driven environmental policy recommendations

KinderCare

📍 Portland, OR

Operations Business Analyst

📅 June 2016–Dec 2017

SKILLS

- Programming Languages: Python, R, SQL, DBT, VBA
- Data Visualization: Streamlit, Plotly, Matplotlib, Seaborn, Folium, Tableau
- Geospatial: Geopandas, Shapely, Xarray, Google Earth Engine
- Machine Learning: Scikit-learn, XGBoost, PyTorch, MLFlow
- Optimization: CVXPY, SCIPY, GUROBI, HIGHS
- Network Modeling: Networkx, Pytorch Geometric
- Cloud Computing: GCP (BigQuery, GCS, Kubernetes), AWS
- Distributed Computing: Ray, Dask
- Other: LaTeX, Excel, French

EDUCATION

Toulouse School of Economics

📍 Toulouse, France

M.Sc. Econometrics

📅 Sep 2019–Oct 2021

- Awarded Sanofi and Analysis Group full scholarship available to only one American applicant.

University of Oregon

📍 Eugene, OR, USA

B.S. Economics, Math

📅 Sep 2011 - Sep 2015

- Minor in Physics

MASTERS THESES

EU Electricity Market Modeling

Toulouse School of Economics

- Developed advanced time series and panel regression models in R to quantify the relationship between renewable power shares and ancillary service volumes, revealing a robust and significant positive marginal effect
- The time series analysis, conducted individually for each of the 20 countries, offered insights into regional variations and identified potential omitted variables

Portfolio Optimization with Options

Toulouse School of Economics

- Built an options portfolio selection model for the S&P 500 utilizing a GARCH volatility prediction model and the CVXPY package with MOSEK in Python
- Demonstrated the potential for enhancing risk-adjusted returns and mitigating losses during market shocks through strategic option allocation

INTERESTS

- Mountaineering, Wild Mushroom Foraging, Cheese Biology, Ping Pong