



Built a Predictive Model to **Optimize Digital Spend & Boost Marketing ROI**

Designed and built an algorithm to help customers optimize bids to maximize return on ad spend by leveraging advanced statistical modeling and machine learning.

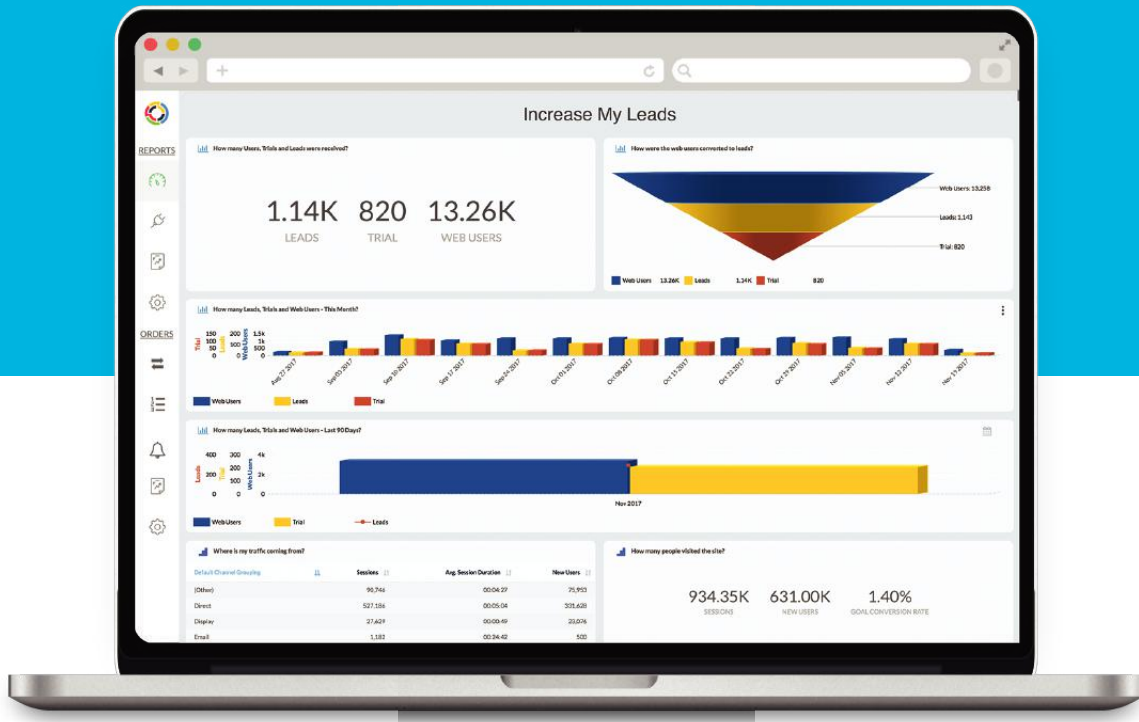
— The Client

The client is a marketing technology company with a marketing operations platform that is focused on marketing workflow, performance analytics, client reporting and data.

— Executive Summary

The client caters to a number of customers who leverage client's marketing operations platform to place and measure the performance of enterprise ad campaigns, promotions, and social postings. By building and deploying a predictive machine learning model, Veltris was able to leverage data insights to pre-optimize these campaigns and campaign execution on all the social media platforms like Instagram, Google, Facebook, etc.

The predictive model helps by executing nuanced targeting and bid adjustments in real time to drive better ROI.



Web Dashboard

— Challenge

With online marketing dollars getting wasted in advertising — (i) largely because ads were reaching the wrong audiences, (ii) reaching the right audiences at the wrong time, or (iii) ad spend was more than necessary to achieve the defined marketing goals, the client needed to automate bidding in a way which allows their customers to optimize their ad spend based on their marketing goal - site visits, impressions, conversions, etc.

Project Duration
3 months

— Approach

The steps in the building of the predictive machine learning model process were:

Defining Outcomes: Determining what questions we wanted the model to answer, like “How many of my existing customers are likely to buy this product/service again in the next 12 months?” This helped us highlight the features that were most required.

Data Collection: Determining which data we need, how do we collect it, and the best ways to label/store it.

Data Analysis: We analyzed patterns based on historical data and performance through both manual and automated approaches to form conclusions about customer purchase behavior.

ML Modeling: We tested out those conclusions by predicting a future outcome with AI algorithms based on the past data available.

Deployment: We leveraged the business analytics and predictions to help customers determine the best course of action.

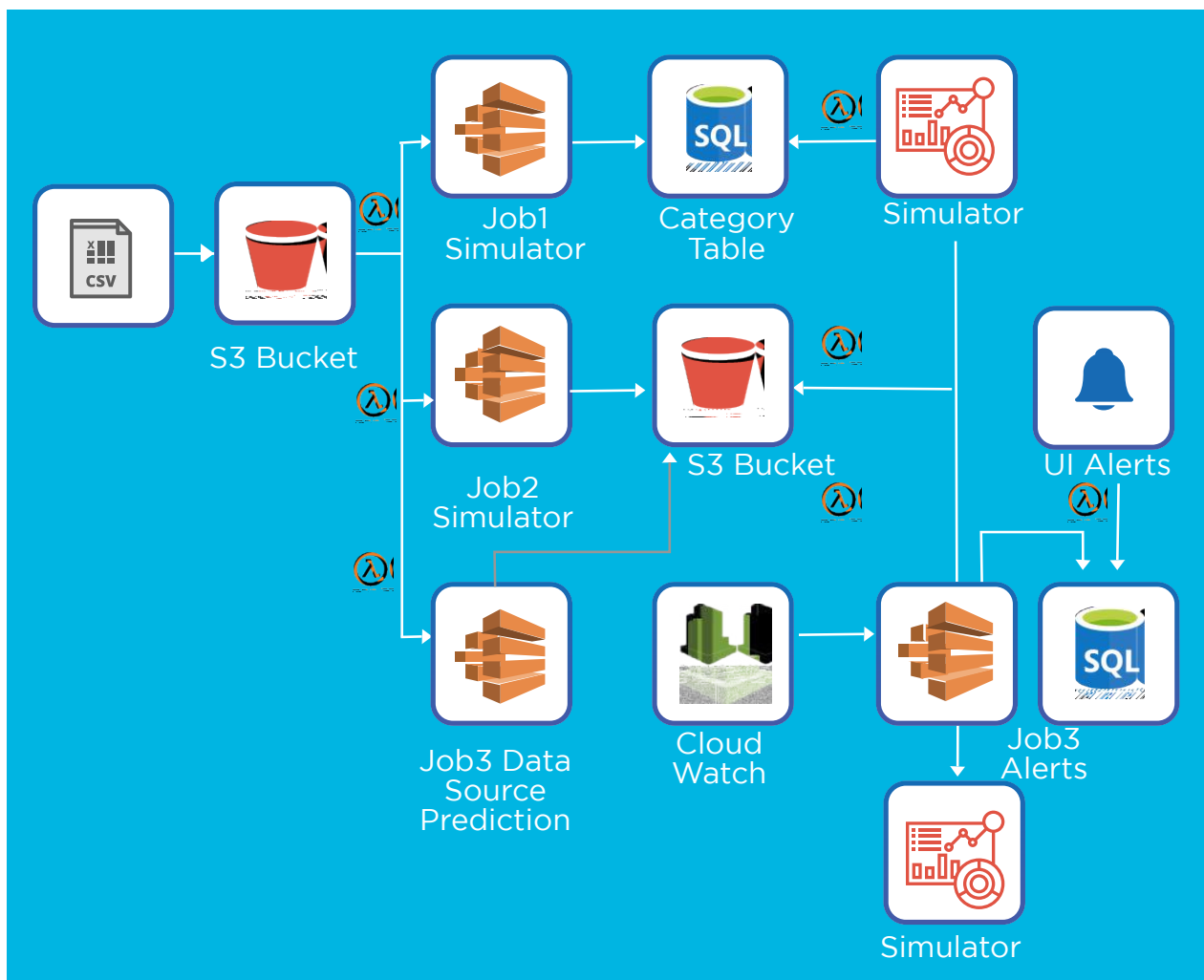
— Solution

After analyzing the data and performing exploratory data analysis (EDA), we looked at a lot of different algorithms to find the one that works the best with the given dataset. We picked a few machine learning algorithms such as Random-forest/XGB/MLR to use for various scenarios.

Ideally, a problem of this nature can be solved by building a ML model specific to one particular customer that leverages historical data and campaign performance results and accurately predicts the future outcomes for that customer. However, the client has over 166,600 end-customers which made it impossible for us to implement a single ML model.

We came up with an innovative idea to solving the model proliferation problem – we categorized the customers based on business domains in order to group them into similar buckets with correlated outcomes. This helped us reduce the number of models to less than 100 which were both, manageable and maintainable.

The models rely on site visits, social media engagements, pay-per-click (PPC) campaign data and other variables to automatically adjust bids in real time. The customers can gain insight into the best ways to allocate their media mix or understand the likely effectiveness of a potential campaign.



ML Algorithm for Predictive Analytics and Reporting Model

The ultimate goal of the client was to help its customers maximize the returns (ROI) on their marketing spend. Our predictive ML model has made it possible to analyze historical and live data from various customer touch-points to enhance the effectiveness of future marketing campaigns.

Reduction in unnecessary ad spend

by ensuring only the minimum amount necessary is spent to reach the defined marketing goals

Drive business profits

by identifying minute bidding inefficiencies and optimizing click-through rates

Improved customer satisfaction

by providing the end-customers better visibility and control of their marketing spend

— How the Product Helped

With our predictive model, customers can better plan, develop, strategize and implement future marketing campaigns. Unlike the earlier scenario where decisions regarding ad spends were made merely on unproven assumptions based on instincts and some educated guesses, using data and machine learning technologies, the model can ensure that every dollar of the marketing campaign budget is well spent.

— Tech Stack



Python Libraries
Sklearn



Machine
Learning
Xcalar



Database to store
predictions
My SQL



Cloud Platform
AWS Stack



Backend
Python