

# JACOB BURBANK-GOLDRICH

Machine Learning Engineer

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📍 Los Angeles, CA

## SKILLS

### Languages

Python

R

MATLAB

SQL

Scala

PySpark

Arena

OpenBUGS/WinBUGS

### Data Visualization

D3.js

PowerBi

Tableau

### Cloud

AWS

Google Cloud

Databricks

## CAREER OBJECTIVE

Passionate about improving corporate insights and the quality of life for all through the use of data-driven prescriptive and descriptive models.

## WORK EXPERIENCE

### Capstone Project

#### Parametric Portfolio Advisers

📅 Oct 2021 - Dec 2021

##### Credit Prediction Model:

Developed ingestion pipelines to merge multiple databases containing demographic information by city and state for the entire United States. Conducted exploratory data analysis and cleansing on the derived features to determine any relationships between certain features and remove outliers. Created a supervised model for predicting municipality credit score based on credit score provided by NRSO's (Moody's, Fitch, and S&P). RMSE was reduced by 0.75 points and the R-squared was increased by 0.3 compared to baseline.

##### Bond Pricing Model:

Developed a baseline regression model for bond pricing to serve as a benchmark for more refined models. Conducted additional experiments using AdaBoost, Random Forests, and Logistic Regressions. The final model improved the overall RMSE by 30% with an R-squared of greater than 0.9. Upon completion, this model was put into production and serves the daily trading operations for the portfolio advisers. During utilization in production, increased size in the total bond universe for training has improved the RMSE by an additional 67%.

### Tutor

#### Air Tutors

📅 Apr 2016 - current

📍 Los Angeles

Provide mentor-minded education to students in order to help them break through conceptual barriers and help provide a higher level of educational experience with engaging one-on-one and group sessions.

### Founding Member

#### Air Tutors

📅 Apr 2016 - Mar 2018

📍 Los Angeles, CA

Helped pioneer the unique service and approach utilized by Air Tutors. Responsibilities have included school outreach, marketing campaigns, and student/tutor workflow design. Air Tutors now partners with schools around California.

## EDUCATION

### MSc Data Science & Analytics

#### Georgia Institute of Technology

📅 Jan 2020 - Dec 2021

🎓 GPA: 4.0

CS 7642 - Reinforcement Learning

ISYE 6420 - Bayesian Statistics

ISYE 6644 - Simulation

ISYE 6740 - Computational Data Analytics (ML 1)

ISYE 6699 - Deterministic Optimization

ISYE 8803 - High-Dimensional Data Analytics (ML 2)

### BS Physics

#### Colorado Mesa University (Transfer from CSU, Northridge)

📅 2005 - 2009

📍 Grand Junction, CO

Awards: Graduated Cum Laude