

Jacob Abene

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Objective Statement:

Dual engineering graduate with professional and project experience in quantitative modeling and mechanical engineering. Both a collaborative and independent worker eager to leverage my skills to maximize project outcome.

Software and API Proficiencies:

- Python, MATLAB, NX, SolidWorks, AutoCAD, Mathematica, Excel, LabVIEW, Microsoft Office
- Scikit-Learn, TensorFlow, Keras, Pytorch, XGBoost, LightGBM, CatBoost, Pandas, NumPy, Matplotlib, Seaborn

Education:

University of Southern California, Viterbi School of Engineering

M.S. Financial Engineering May 2024

- *Machine Learning, Quantitative Investing, Math and Tools for Financial Engineering, Corporate Finance, Stochastic Processes for Financial Engineering, Probability for Electrical Engineers, Predictive Analytics, Financial Engineering*

B.S. Mechanical Engineering August 2023

- *Thermodynamics, Heat Transfer, Dynamic Systems, Mechanics of Composite Materials, Computer-Aided Analyses for Aero-Mechanical Design, Strength of Materials, Fluid Dynamics, Turbine Design, Python, Mechoptronics 1 and 2, Engineering Design Theory, Senior Design Lab, Technology Entrepreneurship*

Experience:

Tesla Motors, Tech Trainee

Summer 2022

- Conducted detailed inspections, repairs, and services on Tesla electric vehicles using a variety of hand power, shop, and test tools, contributing to servicing 80-100 cars daily.
- Utilized engineering principles and problem-solving techniques to diagnose and resolve complex electrical and mechanical issues, supporting high-volume service operations.

Airrow Robotics, Mechanical Engineering Intern

Summer 2021

- Prototyped and improved 3D printed components for a robot equipped with computer vision.
- Developed a human-centered safety system, reducing system failure rates by 50% and improving performance and reliability.
- Implemented a custom cooling system that reduced CPU temperature by 20% and documented comprehensive preoperational and technical field-testing procedures.

B&C Transit Consultants, Engineering Intern

Feb 2020 - May 2021

- Collaborated with engineering team to streamline design communication, signaling systems, and bill of materials for BART.

Viterbi Startup Garage, Summer Smasher Intern

Summer 2019

- Supervised 30 interns across seven tech startups in an incubator, efficiently managing daily operations and team needs.
- Organized weekly speaker series with over 50 participants, produced a weekly newsletter and hosted team workshops.

Academic Projects:

Directed Research, Graduate Researcher

Summer - Fall 2023

- Created an LSTM-based machine learning algorithm to predict stock returns, processing stock and economic data for accuracy. Engineered and integrated technical and economic indicators, achieving high predictive accuracy ($R^2 > 80\%$).
- Evaluated and optimized model performance using metrics such as MSE, RMSE, MAE, R^2 Score, and MAPE. Employed feature selection techniques like Independent Component Analysis (ICA) and Permutation Importance to enhance model robustness.

Senior Design Project, Team Member

Fall 2022

- Designed, built, and tested a cold gas rocket control system, resulting in valuable performance data for USC Rocket Lab
- Optimized component selection and system constraints using CAD models.

Community Involvement and Awards:

USC Ice Hockey, President and Captain

2017-2023

- Led recruitment and team operations, managed a \$100k budget, created viral social media

TEDx Bellarmine College Preparatory, Head Organizer

2015-2017

- Directed high school's first TEDx event, securing licenses and networking with speakers.

Solar4America Ice, Youth Ice Hockey Coach

Summer 2016, 2017, 2018

- Prepared and led drills for youth hockey players ages 5-12 in summer camp and house league.

SafeRides of Los Gatos, Board Member, Head of Finance, Adult on Duty (currently)

2014-Present

- 200+ volunteer hours, created a budget plan, managed/presented financial reports, and led a \$4,000+ fundraising campaign.

Awards: Mike Fratto Outstanding Trojan Hockey Award (Spring 2023), Team USA Ice Hockey Gold Medalist (Summer 2017), ELC Rotary Leadership Conference Winner (February 2015)