

## GEORGE R. CUBAS

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### SUMMARY

Engineer and Python Developer with more than 9 years of experience. Experienced in large scale million-dollar projects utilizing cross-functional team collaboration. Skilled in AI, Web development, data analysis and Engineering Economics, with 4 years of experience in the Energy Sector.

### TECHNICAL SKILLS

Python, OOP, Django, Pandas, NumPy, Selenium, BeautifulSoup, Docker, Flask, Matplotlib, SciPy, PyTorch, Keras, Apache Spark, REST Architecture, Ruby, SQL Server, JavaScript, Linux, Machine Learning, AI, Scikit-learn, ArcGIS, GitHub, TA-Lib, SQL Server, Jupyter Notebook, SQL, Arcpy, REST, Boto3 AWS, Async IO, R, Fortran, C#, GIT, Kafka, Microsoft suite programs including Excel, Word, and PowerPoint, Playwright, Ray, Multiprocessing.

### PROFESSIONAL EXPERIENCE

#### Compbuss

Aug 2023 - Present

Python Developer

- Design and build AI services including Image Learning and Classifiers using natural evolution black box methods and deploy using FASTAPI.
- Design, build, and maintain efficient, reusable, reliable code.
- Constantly and iteratively improve existing API functionality performance and quality of services.
- Write and maintain code following engineering best practices using CI/CD KISS tools.
- Write unit and integration tests using test driven development methodologies.

#### University of Virginia

Mar 2022 - Dec 2022

Python Developer

- Generate programs for ETL process for Office of Sponsored Programs.
- Utilize Pandas, NoSQL, and SQL alchemy to streamline the ETL process for awards, proposals and agreements for full end to end project implementation using analysis, design, modeling and testing for server side scripts and applications.
- Build a crawler to verify the quality of the frontend data and see what percentage of data needs to be corrected.
- Use Pandas to generate various reports to replace reports previously generated using QlikView.
- Use Multiprocessing (bypassing GIL) and Async IO modules when applicable for parallelization/concurrent performance in various scripts.

#### Kinstone Investment Properties

Jul 2019 - Mar 2022

Python Developer

- Model valuation and acquisition of new properties using Pandas, NumPy and Sci-kitlearn in Jupyter Notebook.
- Utilize BeautifulSoup and Selenium to scrape Freddie Mac Multi Family Index information and Case Shiller Housing Price index information adjusted for real inflation. Construct Bridge API's to schedule updated cost valuations of properties in certain areas of Houston using Zillow API.

- Built a DCF model in python using OOP in Jupyter Notebook to evaluate the levered and unlevered IRR for each new property being considered.
- Apply Monte Carlo Analysis using NumPy, SciKitLearn and Pandas for finding the stochastic DCF Evaluation, using the DCF OOP class built.
- Built a model given various DCF valuations and data using Zillow API for decision making using a binary classifier for a given investment area using Flask framework and SciKitLearn.

### **Mass Action Engineering**

**Jan 2019 - Jul 2019**

Chemical Engineer (contract)

- Responsible for the Basis of Design for the production of Polyvinylidene Fluoride Polymer and co polymers.
- Created customized scripts for processing all P & ID's and PFD's using Python.
- Designed a process calculation utilizing NumPy, Pandas and Jupyter Notebook. The scripts were modularized to have each unit process within its own class using OOP principles.
- Utilized data structures such as Dictionaries and key value pairs consisting of arrays, or nested dictionaries for each unit process for storing the results across each unit.
- Built a Pandas data frame using dictionary to DF and then exported to Excel for rendering. The algorithms used for balancing each unit operation were selected on a case by case basis including both linear and dynamic algorithms.
- Worked with a tech team to effectively simulate the Free Radical Emulsion Polymerization of the monomer Vinylidene Fluoride.

### **Occidental Petroleum**

**Jan 2017 - Jan 2019**

Software Engineer

- Planned various Field Development and Section Development plans in locations throughout New Mexico and Texas.
- Built an Anti-Collision Risk Analysis Web application using Django Framework that calculated the risk between planned Wells and existing wells.
- Created scripts that used a pretrained neural network to extract scanned well file data to a CSV using a Linux shell script.
- Built scrapers using BeautifulSoup4 and Selenium.
- Designed a drilling web application using Django and a machine learning algorithm that modeled drawdown for production using Scikit-learn.
- Designed most programs using Python, some JavaScript, the Django framework, and the modules NumPy, Pandas and scikit-learn. All Python code was written using OOP principles and applying the necessary algorithmic approach on a case by case basis.
- Developed models using ArcGIS, Python, Arcpy, SQL, Excel, and Powerpoint.

### **British Petroleum (Alaska)**

**Jan 2013 - Dec 2016**

Drilling and Completion Engineer

- Supervised and managed the daily drilling operations in various roles.
- Managed teams of 30+ people and projects in excess of \$20MM.
- Planned a \$10MM sidetrack well which included building a time estimate based on gathered metrics in each development hole section based on a Monte Carlo time estimate and cost estimate based on gathered rig burn rates and total equipment costs.

- Executed the technical engineering design based on the recommended practices and standard procedures for the North Slope Developmental area. The well was put on production at a rate of 100,000 bbl/per day.
- Worked in the role of Rig workover engineer in charge of replacing ESP's in dynamic pressured reservoirs in Milne Point and extensive decompletes and scab liner jobs.

## PROJECTS

### Trading Backtester Ribbon Strategy

2020

[<https://github.com/mateBarey/Trading-Backtester-Ribbon-Strategy>]

A Crypto Trading program that uses a Ribbon Moving Average Strategy to trade

- Utilized Binance Rest API, TA-Lib, NumPy Python Modules.
- Program uses Exponential Moving averages (8,13, 21 and 55) to find a buy signal and sell signal.
- Inputs are time frame, from and to dates for back test, and trading pair.
- 30% Profitable trades with a 200+% ROI.

### Apache Spark Prediction Pipeline

2019

[<https://github.com/mateBarey/Apache-Spark-IOT-Prediction-Pipeline>]

Weather IOT data is cleaned using PySpark SQL and vectorization, a correlation matrix built to check for independent variables and then a train and test dataframe is split by 0.8 and 0.2, the models are then built using a train\_DF to predict a label called "HOURLYPressureTendency"

- Coded in Python using Jupyter Notebook.
- Utilized Apache Spark for building a machine learning pipeline and training/testing data.
- Predictors used were Linear Regression, Gradient Boosted Tree Regressor, Logistic Regression, Random Forest Classifier and a GBT Classifier.

### Actor Critic Reinforcement Learning NN

2019

[<https://github.com/mateBarey/Reinforcement-Learning>]

A reinforcement algorithm that uses an actor for finding the best policy and critic which enables finding the best probability associated with each action to take in order to solve the Cart Pole Problem

- The program is written in Python using the PyTorch Module for creating Neural Networks.
- It has 2 hidden layers with 2 neural nets (NN) for both actor and critic and 512 neurons in each.
- Uses Relu Activation functions.

### Drilling Anti Collision Web App

2018

[<https://github.com/mateBarey/SF-Drilling-Well-Calcs>]

A Web app that uses 2 inputs: Well Inventory File and a Planned Well File to generate a Risk Analysis.

- Coded in Python utilizing the Django framework.
- Incorporated SQLite3 database.
- Incorporated User login security & authentication.
- App calculates a 2xSF and flags wells that have a 2xSF greater than the center to center distance.
- App populates a SQL database with Risk analysis information for flagged wells.
- App renders an Excel Spreadsheet visualization for all well data generated.

## **DB as a Rest API**

**2017**

[<https://github.com/mateBarey/DB-as-a-Rest-API-using-Flask>]

A database as a Rest API using Flask that allows users to register and get tokens. A token is taken away when a sentence is stored and then retrieved.

- Coded in Python using the Flask framework.
- Utilized RESTful architecture.
- Integrated a NoSQL database which allowed for a dynamic schema and linear scalability.
- Utilized Docker Containerization.

## **LANGUAGES SPOKEN**

Spanish, Portuguese, French

## **EDUCATION AND CERTIFICATIONS**

Bachelor of Science, Chemical Engineering - University of Houston

AI Engineering Professional Certificate - IBM

Machine Learning for Traders - Google Cloud

Coding Bootcamp - Le Wagon