The Quant's Curated Free Learning Resources

A directory of free, high-quality online resources to take you from beginner to advanced in all areas necessary for a career in quantitative finance.

Part I: Mathematics – The Foundation

Calculus

- **Khan Academy: Calculus 1**: A comprehensive introduction to limits, derivatives, and basic integrals.
- **Khan Academy: Calculus 2**: Covers integration techniques, applications, and an introduction to series.
- **MIT OCW: Single Variable Calculus**: A complete, university-level course with lecture notes, assignments, and exams.
- **3Blue1Brown: The Essence of Calculus**: An outstanding video series building deep, visual intuition for core calculus concepts.
- **Paul's Online Math Notes: Calculus**: Detailed and easy-to-follow online notes with examples, serving as an excellent free textbook.
- **MIT OCW: Multivariable Calculus**: The standard follow-up to single variable, essential for models with multiple factors.
- **MIT OCW: Calculus Textbook (Strang)**: A free, comprehensive textbook from a renowned MIT professor.
- **Coursera: Vector Calculus for Engineers**: Covers multivariable concepts vital for quant finance (audit for free).
- **An Introduction to Malliavin Calculus (PDF)**: For deep dives into the mathematics of derivatives pricing and hedging.

Linear Algebra

- **Khan Academy: Linear Algebra**: A full introductory course covering vectors, matrices, and linear transformations.
- **3Blue1Brown: Essence of Linear Algebra**: A highly acclaimed video series building strong geometric intuition.
- **Stanford CS229: Machine Learning Notes**: Includes excellent review notes on linear algebra and probability.
- **fast.ai: Computational Linear Algebra**: A free course teaching linear algebra from a programmer's perspective.
- **Numerical Linear Algebra Lecture Notes (PDF)**: Covers computational aspects like SVD, matrix factorizations, and stability.
- **Random Matrix Theory (arXiv)**: An advanced topic applied in portfolio theory to clean correlation matrices.

Probability

- **Khan Academy: Statistics and Probability**: A comprehensive introduction to fundamental probability concepts.
- **Harvard Stat 110: Probability**: A legendary introductory course by Joe Blitzstein, with all materials free online.
- **Introduction to Probability (Grinstead & Snell)**: A classic, free textbook from the American Mathematical Society.
- **Seeing Theory**: A visual, interactive introduction to probability and statistics from Brown University.
- **MIT OCW: Probabilistic Systems Analysis**: A rigorous treatment of probability including stochastic processes.
- **Probability, Random Processes, and Ergodic Properties (PDF)**: A free online book bridging to advanced topics.
- **edX: Probability - The Science of Uncertainty (MIT)**: An MIT course diving deeper into probability theory.
- **An Introduction to Stochastic Processes (PDF)**: Lecture notes covering the basics of stochastic processes.

- **The Bachelier Finance Society**: A source for working papers and conference materials on advanced financial mathematics.

Differential Equations

- **Khan Academy: Differential Equations**: A complete introductory course covering first-order, second-order, and Laplace transforms.
- **MIT OCW: Differential Equations**: A classic introductory course with video lectures by Arthur Mattuck.
- **Paul's Online Math Notes: Differential Equations**: Comprehensive, free online notes that are an excellent substitute for a textbook.
- **3Blue1Brown: Differential Equations Playlist**: A visual exploration providing intuition behind the methods.
- **Notes on Diffy Qs**: A popular free online textbook that is clear and concise.
- **Coursera: Differential Equations for Engineers**: Covers techniques relevant to financial modeling (audit for free).
- **An Introduction to SDEs (PDF)**: Detailed lecture notes on Stochastic Differential Equations.
- **QuantLib Documentation**: Contains examples of how various differential equations are solved in practice.

Optimization

- **3Blue1Brown: Gradient Descent**: A visual explanation of the core optimization algorithm in machine learning.
- **DataCamp: Optimization in Python Tutorial**: A practical introduction to using Python's optimization libraries.
- **Algorithms for Optimization (PDF)**: An excellent textbook made freely available online by the authors.

- **Convex Optimization by Boyd & Vandenberghe (PDF)**: The definitive textbook on the subject, available for free online from the authors.
- **Google AI for Optimization**: An overview of various optimization services and concepts from Google.
- **Numerical Optimization by Nocedal & Wright (PDF)**: A standard graduate textbook.
- **CVXPY Examples**: A library of examples for this popular Python library, including many financial applications.

Part II: Programming – The Tools

Python

- **The Official Python Tutorial**: The authoritative source straight from Python's creators.
- **Automate the Boring Stuff with Python**: A free, hands-on book by Al Sweigart for beginners.
- **Real Python – Start Here**: A beginner's guide with interactive tutorials.
- **freeCodeCamp – Intermediate Python**: A YouTube course that covers decorators, generators, and OOP.
- **Numba & Cython Documentation**: Official guides for achieving C-level speed in Python.

C++

- **learncpp.com**: A definitive free tutorial on modern C++.
- **freeCodeCamp – C++ Tutorial**: A YouTube course that starts from basics to intermediate topics.
- **QuantLib Documentation**: Example of real-world financial C++ code.
- **C++ Core Guidelines**: Best practices led by Stroustrup & Sutter.

- **CppCon & C++Now YouTube Channels**: The nation's top C++ conference talks.

Git

- **Pro Git Book**: The official, freely available Git manual.
- **Atlassian Git Tutorial**: Beginner-friendly walkthroughs.
- **GitHub Skills**: Interactive GitHub-hosted tutorials.
- **Learn Git Branching**: Visual, hands-on Git branching.
- **Git from the Bottom Up**: A deep dive into core concepts.

Simulation

- **Khan Academy – Random Variables & Expected Value**: Prerequisite theory.
- **SimPy Documentation**: Discrete-event simulation in Python.
- **NumPy Random Module**: For generating numbers from various distributions.
- **Computational Finance Lecture Notes**: Commonly available with Monte Carlo examples.
- **Quasi-Monte Carlo Methods**: Learn Sobol sequences & low-discrepancy sampling.

Backtesting

- **QuantStart – "Successful Algorithmic Trading"**: An introductory series.
- **Investopedia – "Backtesting"**: Defines key concepts and pitfalls.
- **Quantpedia – "What is a Backtest?"**: Explains backtest components.
- **Backtrader Documentation**: A popular Python backtesting engine.
- **Zipline Documentation**: An event-driven backtester from Quantopian.

- **Marcos López de Prado – Advanced ML in Finance**: YouTube lectures/slides on overfitting.

Part III: Finance & Markets – The Domain

Derivatives

- **Investopedia: Derivatives**: A clear, high-level overview of what derivatives are.
- **Khan Academy: Options, Swaps, Futures, MBS**: A solid introduction to basic derivative instruments.
- **John C. Hull - Options, Futures, and Other Derivatives (Slides)**: The author provides free slides that summarize key concepts.
- **Coursera: Financial Engineering and Risk Management**: A comprehensive course from Columbia University (audit for free).
- **CME Group: Introduction to Futures & Options**: Professional-grade educational materials from the world's largest derivatives exchange.
- **The Options Industry Council (OIC): Free Courses**: An excellent source of free courses on options strategies and theory.

Fixed Income & Equities

- **Khan Academy: Stocks and Bonds**: A clear and simple introduction to the basics of equity and debt instruments.
- **Investing.com: Bond Basics**: A series of articles explaining what bonds are, how they are priced, and the concept of yield.
- **Aswath Damodaran's Website**: An incredible, free resource from an NYU professor covering everything from basic valuation to advanced corporate finance.

- **Coursera: Fixed Income Securities**: A specialization covering bond valuation, term structure models, and credit risk (audit for free).
- **The Yield Curve (Investopedia)**: A detailed explanation of the yield curve and its importance as an economic indicator.
- **SSRN (Social Science Research Network)**: The primary source for the latest academic research papers in finance and economics.
- **Kenneth French's Data Library**: A repository of historical data for academic factors (like Fama-French), essential for equity strategy research.

Market Microstructure

- **What Is Market Microstructure? (QuantStart)**: A great introductory article explaining the core concepts.
- **The Bid-Ask Spread (Investopedia)**: A clear definition of a fundamental microstructure concept.
- **Limit Order Book (Wikipedia)**: A solid overview of the data structure at the heart of modern markets.
- **Execution Algorithms (Interactive Brokers)**: Descriptions of common execution algorithms (VWAP, TWAP) from a major broker.
- **LOBSTER Data**: A source for academic high-frequency data from NASDAQ, essential for any empirical microstructure research.

Risk-Neutral Valuation

- **Risk-Neutral Valuation (Wikipedia)**: A good starting point that outlines the main ideas.
- **Binomial Option Pricing Model (Investopedia)**: The simplest model for building intuition about risk-neutral pricing.

- **John Hull on Risk-Neutral Valuation (YouTube)**: A video lecture from John Hull himself explaining this cornerstone concept.
- **The Fundamental Theorems of Asset Pricing (PDF)**: University lecture notes that formalize the relationship between arbitrage and risk-neutral measures.
- **Martingale Pricing Theory (PDF)**: Oxford University lecture notes that provide the rigorous mathematical foundation.

Corporate Finance

- **Aswath Damodaran's Website**: The single best free resource on the topic, with all teaching materials from his NYU courses.
- **Khan Academy: Corporate Finance**: A series of videos explaining core concepts like Net Present Value (NPV).
- **Coursera: Corporate Finance Essentials**: An introductory course from IESE Business School (audit for free).
- **Investopedia: Beginner's Guide to Financial Statements**: A guide to reading the balance sheet, income statement, and cash flow statement.
- **Discounted Cash Flow (DCF) Valuation (YouTube)**: A detailed, step-by-step video guide to building a DCF model by Professor Damodaran.
- **SEC EDGAR Database**: The primary source for all public company filings (10-Ks, 10-Qs).

Part IV: Statistics & Machine Learning – The Engine

Regression

- **Khan Academy: Regression**: A clear introduction to simple and multiple linear regression.

- **An Introduction to Statistical Learning (Book & Videos)**: The definitive, free introduction to machine learning, with excellent chapters on regression.
- **StatQuest: Regression (YouTube)**: Josh Starmer's videos provide incredible intuition for regression, logistic regression, Lasso, and Ridge.
- **Statsmodels Documentation**: The official documentation for Python's most powerful statistical modeling library.
- **The Elements of Statistical Learning (Book)**: The more mathematically rigorous "bible" of machine learning.

Time Series

- **Forecasting: Principles and Practice (Online Book)**: An excellent and free online textbook on time series forecasting.
- **NIST Engineering Statistics Handbook: Time Series Analysis**: A concise and practical reference for various time series models.
- **Statsmodels Time Series Analysis Documentation**: The official guide to Python's TSA tools, including ARIMA, VAR, and state-space models.
- **The Kalman Filter (Article)**: A fantastic, intuitive visual explanation of this powerful technique.

Overfitting

- **Bias vs. Variance (StatQuest - YouTube)**: An intuitive explanation of the bias-variance tradeoff, the theoretical foundation of overfitting.
- **Cross-Validation Explained (Article)**: A guide to using techniques like K-Fold for more robust performance estimation.
- **Regularization in Machine Learning (Article)**: A tutorial explaining how L1 (Lasso) and L2 (Ridge) regularization prevent overfitting.

- **Advances in Financial Machine Learning (Lectures by de Prado)**: Essential viewing on the specific dangers of backtest overfitting.

Clustering

- **StatQuest: K-means Clustering (YouTube)**: An incredibly intuitive, step-by-step explanation of the K-Means algorithm.
- **Scikit-learn: Clustering Documentation**: The official guide to the various clustering algorithms available and how to use them.
- **Identifying Market Regimes with GMMs (Quantpedia)**: An article demonstrating how Gaussian Mixture Models can identify different market states.
- **Manifold Learning (Scikit-learn)**: An introduction to non-linear dimensionality reduction techniques like t-SNE and UMAP, often used to visualize clusters.

Probabilistic Modeling

- **Bayes' Theorem Explained (StatQuest - YouTube)**: The best place to start to understand the core logic of Bayesian thinking.
- **Bayesian Methods for Hackers (Online Book)**: A fantastic, free, code-focused book that introduces Bayesian methods from a computational perspective.
- **PyMC Documentation**: The official documentation for PyMC, the most popular Probabilistic Programming library in Python.
- **Gaussian Processes (Distill.pub)**: A beautiful, visual, and interactive explanation of Gaussian Processes.

Part V: Research – The Practice

Academic Papers

- **How to Read a Paper (S. Keshav - PDF)**: The classic guide to efficiently reading academic papers using a three-pass approach.
- **arXiv.org (q-fin)**: The essential open-access archive for pre-print research papers in quantitative finance.
- **SSRN (Social Science Research Network)**: Another major repository for pre-print papers in finance and economics.
- **Google Scholar**: An indispensable tool for searching academic literature and tracking citations.
- **Connected Papers**: A fantastic tool for visualizing the academic landscape around a particular paper.

Toy Models

- **Building a Simple Limit Order Book (QuantStart)**: A perfect example of a toy model to understand market mechanics.
- **Binomial Option Pricing from Scratch (Investopedia)**: The classic financial toy model that builds the intuition of risk-neutral pricing.
- **Introduction to Agent-Based Modeling (NetLogo)**: A fantastic environment for building toy models of complex systems (like markets).
- **Project Euler**: Challenging problems that require you to build small, elegant models to find a solution.

Debugging

- **Real Python: Python Debugging With Pdb**: A friendly and practical guide to using Python's built-in debugger.
- **Rubber Duck Debugging**: A simple but powerfully effective strategy for solving bugs by explaining your code.
- **Logging in Python (Real Python)**: Using logging effectively is crucial for understanding what went wrong in a live system.

- **Python Profilers (Official Docs)**: An introduction to `cProfile` and `profile`, tools used to debug performance issues.

Hypothesis Testing

- **Khan Academy: Significance Tests**: A complete introduction to the core logic of hypothesis testing and p-values.
- **StatQuest: p-values, Clearly Explained (YouTube)**: The best intuitive explanation of what a p-value is and is not.
- **The ASA's Statement on p-Values (PDF)**: An important statement from the American Statistical Association clarifying the misuse of p-values.
- **Multiple Hypothesis Testing (StatQuest - YouTube)**: An explanation of why running many tests increases the chance of false positives and how to correct for it.

Communication

- **Storytelling with Data (Blog by Cole Nussbaumer Knaflic)**: The premier resource for learning how to present data in a clear, compelling narrative.
- **From Data to Viz**: A decision tree that helps you choose the right type of visualization for your data.
- **Google's Technical Writing Courses**: A free, excellent course from Google on how to write clear technical documentation.
- **Streamlit Documentation**: The official guide to Streamlit, a Python library for easily building and sharing interactive data apps.
- **How to Write a Git Commit Message (Article)**: A simple but crucial communication skill for team collaboration.

Github repositories:

- sympy/sympy: A Python library for symbolic mathematics, perfect for checking theoretical work.
- numpy/numpy: The fundamental package for numerical computation in Python.
- scipy/scipy: Provides advanced numerical routines for integration and optimization.
- 3b1b/manim: The animation engine behind 3Blue1Brown's iconic math videos.
- HIPS/autograd: A library that can automatically differentiate native Python and NumPy code.

- numpy/numpy: The core library for all matrix and vector operations in Python.
- scipy/scipy: Its `linalg` module provides more advanced linear algebra routines.
- eigen-git-mirror/eigen: A high-performance C++ template library for linear algebra.
- fastai/numerical-linear-algebra: A repository with course materials that teach linear algebra from a programmer's perspective.
- facebookresearch/faiss: A library for efficient similarity search and clustering of dense vectors.

- scipy/scipy: The `scipy.stats` module is a comprehensive library of probability distributions.

- pymc-devs/pymc: A powerful Python library for probabilistic programming and Bayesian modeling.

- stan-dev/stan: A state-of-the-art platform for statistical modeling and high-performance computation.

- AllenDowney/ThinkStats2: The repository for the excellent book *Think Stats*, which teaches from a computational perspective.

- numpy/numpy: The `numpy.random` module is the foundation for all simulation-based probability modeling.

- scipy/scipy: The `scipy.integrate.solve_ivp` function is the workhorse for solving ODEs in Python.

- lballabio/QuantLib: The premier C++ library for quant finance; its source code contains industrial-strength solvers.

- SciML/DifferentialEquations.jl: Considered the state-of-the-art suite for solving differential equations (in Julia).

- dedalus-project/dedalus: A powerful Python framework for solving differential equations using spectral methods.

- google/tf-quant-finance: TensorFlow's quant finance library includes high-performance solvers.

- cvxpy/cvxpy: A Python-embedded modeling language for convex optimization problems.
- scipy/scipy: The `scipy.optimize` module is the go-to for general-purpose optimization in Python.
- google/or-tools: Google's open-source software suite for solving large-scale optimization problems.
- facebook/Ax: A platform for adaptive experimentation that provides an easy interface for Bayesian optimization.
- optuna/optuna: A hyperparameter optimization framework designed for machine learning.

- lballabio/QuantLib: The benchmark open-source C++/Python library for quantitative finance, pricing, trading, and risk management.
- google/tf-quant-finance: A high-performance TensorFlow-based library for derivatives pricing and risk management.
- vollib/py_vollib: A Python library for calculating option prices, implied volatility, and Greeks based on Black, Black-Scholes, and Black-Scholes-Merton.
- deribit/deribit-api-clients: API clients for the Deribit crypto options exchange, providing a hands-on way to work with real-time options data.

- compatibl/compatibl-com: An open-source derivatives trading and risk management library focused on modern risk practices like Adjoint Algorithmic Differentiation (AAD).

- finra/finra-api: An API for accessing FINRA's dataset, including detailed information on US Treasury securities (TRACE).

- rsvp/fecon235: A Jupyter notebook library for financial economics, with many examples of fixed income and equity analysis.

- pynance/pynance.py: A Python library for retrieving, analyzing, and visualizing stock market data.

- OpenBB-finance/OpenBBTerminal: A powerful, open-source investment research terminal with extensive data on equities and fixed income.

- derekbanas/Python-for-Finance: A repository with tutorials and code for stock analysis, including retrieving data, calculating returns, and factor modeling.
- uWebSockets/uWebSockets: A highly efficient C++ library for real-time WebSocket communication, essential for building fast market data clients.

- project-mesa/mesa: An agent-based modeling framework in Python, great for simulating complex market dynamics and emergent microstructure phenomena.

- nkaz001/hftbacktest: A high-performance, tick-level backtesting framework in Rust and Python for market microstructure strategy

research.

- Limit-Order-Book: A Python implementation of a limit order book, serving as a great educational tool for understanding market mechanics.

- pors/HFT-data-analysis-tools: A collection of Python tools for analyzing and visualizing high-frequency financial data.

- lballabio/QuantLib: The entire framework is built on the principle of risk-neutral valuation, from binomial pricers to Monte Carlo engines.

- enthought/py-finance: A Python library with clear implementations of option pricing models, including binomial tree pricers that explicitly demonstrate risk-neutral logic.

- rateslib/rateslib: A Python library for fixed income that correctly builds discount curves and performs valuations, implicitly using risk-neutral pricing.

- pfnet/pyme: A Python library for financial modeling and option pricing with clear examples of Monte Carlo simulations under a risk-neutral framework.

- yhilpisch/dx-analytics: A Python library for advanced derivatives analytics showing implementation of risk-neutral valuation for complex models like Heston.

- areed1192/finance-historical-data: A Python library that scrapes historical financial data (income statements, balance sheets, etc.) from various sources.

- sec-edgar/sec-edgar: A Python package for downloading and parsing corporate filings from the SEC EDGAR database.

- pystrin/fundamental-analysis: A Python library for performing fundamental analysis, including retrieving financial ratios, statements, and analyst estimates.

- OpenBB-finance/OpenBBTerminal: Provides a huge suite of tools for fundamental analysis, DCF modeling, and comparing company financials.

- jasonstrimpel/Financial-Analysis-with-Python: A repository with notebooks and code demonstrating financial analysis and valuation in Python.
- statsmodels/statsmodels: The primary Python library for rigorous statistical computation, including many linear, generalized, and robust regression models.

- scikit-learn/scikit-learn: The go-to Python machine learning library with easy implementations of Linear Regression, Ridge, Lasso, and other regularized models.

- linearmodels/linearmodels: A Python package specialized in financial econometrics, panel data models, and instrumental variable regressions.

- Rdatatable/data.table: An R package known for incredible speed and efficiency in large-scale data manipulation, essential for

regression data prep.

- OpenBB-finance/OpenBBTerminal: Includes econometrics tools with various regression analyses for financial data.
- unit8co/darts: A Python library that makes it easy to manipulate and forecast time series data, with a common interface for many models.

- statsforecast/statsforecast: An extremely fast and scalable library for time series forecasting, optimized for performance.

- facebook/prophet: A popular forecasting procedure from Meta, robust to trends, seasonality, and holidays.

- alan-turing-institute/sktime: A unified framework for machine learning with time series, providing scikit-learn-compatible interfaces for various time series tasks.

- arch/arch: The primary Python library for ARCH/GARCH and other volatility models, essential for financial time series analysis.
- scikit-learn/scikit-learn: Its `model_selection` (cross-validation, train-test split) and `linear_model` (Lasso, Ridge) modules are key tools for combating overfitting.

- hudson-and-thames/mlfinlab: Implements advanced portfolio construction and backtesting techniques from Dr. Lopez de Prado, focusing on preventing overfitting.

- optuna/optuna: An automatic hyperparameter optimization framework that incorporates cross-validation to find the best model parameters.

- Alex-Lekov/AutoML_Alex: An automated machine learning library demonstrating a full pipeline with cross-validation, stacking, and hyperparameter tuning.

- WenjieZ/TSCV: A scikit-learn extension providing cross-validators designed for time-series data, such as walk-forward validation.
- scikit-learn/scikit-learn: The primary Python library for clustering, including K-Means, DBSCAN, Agglomerative Clustering, and more.

- lmcinnes/umap: The reference implementation of UMAP, a powerful tool for visualizing high-dimensional data and clusters.

- hdbscan/hdbscan: An advanced hierarchical density-based clustering algorithm, often more robust than DBSCAN.

- paolo-viceconte/Market-based-analysis-of-US-equity-sector-ETFs: A research project using clustering and dimensionality reduction to analyze stock sectors.

- hudson-and-thames/mlfinlab: Implements Hierarchical Risk Parity and other advanced financial machine learning techniques relying on clustering.
- pymc-devs/pymc: The premier Python library for probabilistic programming, enabling flexible and powerful Bayesian modeling.

- stan-dev/stan: A C++ library with interfaces to many languages (including Python via cmdstanpy) for high-performance Bayesian inference using MCMC and variational inference.

- pyro-ppl/pyro: A deep probabilistic programming library built on PyTorch by Uber AI.

- tensorflow/probability: A TensorFlow library for probabilistic reasoning and statistical analysis, designed to integrate with deep learning models.

- dkanungo/Probabilistic-ML-for-finance-and-investing: Code repository for the book *Probabilistic Machine Learning for Finance and Investing*, with many practical examples.
- zotero/zotero: The leading open-source reference manager for collecting, organizing, citing, and sharing research papers.

- jabref/jabref: A powerful open-source bibliography manager, popular with the LaTeX community.

- huggingface/transformers: A deep learning library whose summarization models can help create abstracts and grasp dense academic papers.

- arxitics/arxitics: Provides analytics and visualizations for papers on arXiv to help gauge a paper's impact.

- papers-we-love/papers-we-love: A massive community-curated list of influential academic papers, mainly in computer science but relevant to quant systems.

- ipython/ipython-in-depth: A collection of Jupyter notebooks perfect for exploratory work and building toy models interactively.

- project-mesa/mesa: An agent-based modeling framework in Python, ideal for toy models of markets, herds, and complex systems.

- numpy/numpy-100: 100 NumPy exercises designed to build tiny models and deepen understanding of the core numerical library.

- blackjack-analyzer/blackjack-analyzer: A toy model simulating Blackjack to test strategies in a simple system.

- Min-Protocol/min-protocol.github.io: The website for a minimal blockchain protocol illustrating how complex systems can be explained with simplified models.

- gotcha/ipdb: The IPython Debugger, offering a user-friendly interface for pdb with tab completion and syntax highlighting.

- py-spy/py-spy: A sampling profiler for Python programs that visualizes runtime performance without slowing the code.

- google/sanitizers: Google's collection of program analysis tools (e.g., AddressSanitizer) to find bugs in C/C++ code at runtime.

- PyCQA/flake8: A powerful Python tool for checking code style, errors, and complexity to catch bugs early.

- python/mypy: The official static type checker for Python; adding types helps prevent entire classes of bugs.
- scipy/scipy: The `scipy.stats` module is the cornerstone of hypothesis testing in Python.

- statsmodels/statsmodels: Provides an extensive, R-like framework for statistical testing with detailed summary outputs.

- abhishav/analyzing-ab-test-results: An example repo walking through the process of analyzing A/B test results.

- hudson-and-thames/mlfinlab: Implements multiple hypothesis testing adjustments and other statistical tests relevant to financial ML.

- slundberg/shap: A library for explaining machine learning model outputs, helping generate hypotheses about what the model has learned.
- streamlit/streamlit: An open-source app framework for machine learning and data science teams. The fastest way to build and share data apps.

- plotly/dash: A powerful framework for building analytical web apps without needing JavaScript.

- matplotlib/matplotlib: The foundational data visualization library in Python.

- mwaskom/seaborn: A high-level interface for creating attractive and informative statistical graphics in Python.

- jupyter/notebook: The classic Jupyter Notebook, a key tool for combining code, visualizations, and narrative text in research and communication.