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EDUCATION

Master of Applied Sciences (MAS) in Data Science, Illinois Institute of Technology, Chicago **Aug 2023 – May 2025**
Key Courses: Time Series & Monte Carlo Analysis, Econometrics, Statistics, Probability, Algebra, Algorithms, NLP, Regressions, Stochastic Calculus, AI

EXPERIENCE

Enterprise Delivery Governance Analyst, Options Clearing Corporation, Chicago. **May 2024 – May 2025**

- Built real-time monitoring dashboards and trader-facing interfaces using Tableau and Alteryx, enabling operations and trading teams to visualize exchange health and latency risks. Prototyped statistical/ML models for anomaly detection in financial data pipelines, integrating Python with distributed systems and specifically targeting the Operational and Financial Risk Oversight of clearing members.
- Leveraged Python libraries (Pandas, Scikit-Learn, TensorFlow, PyTorch) to process and analyze unlabeled data.
- Successfully identified complex outlier patterns coinciding with a 1-in-50-year market rally event, directly enabling proactive risk mitigation strategies.
- Engineered and automated dynamic Tableau dashboards for critical real-time service health monitoring by leveraging Alteryx for data blending and advanced SQL/EQL techniques. Automated complex data integration across ServiceNow, Jira, and Spira Test, reducing manual reporting by 20% while ensuring SEC/CFTC compliance.

Custom Software Engineer, Accenture Solutions, India **Sep 2022 – Sep 2023**

- Customized and delivered a high-performance, low-latency back-end trading module using C++ on Linux, architected specifically, to meet a major financial client's real-time transactional requirements
- Implemented multi-threading, memory optimization, and efficient I/O handling to achieve <50ms latency under peak volumes.
- Designed and integrated scalable RESTful APIs that enabled a client's external partners to securely access tailored platform functionality and socket-based networking modules, enabling seamless connectivity between trading systems and client platforms.
- Engineered critical API integration layers using Python to fulfill complex cross-platform data exchange requirements for a client's legacy systems. This customization streamlined data synchronization, accelerating the feature deployment pipeline by 25% for multiple client-facing applications.
- Collaborated closely with client product managers and developers to translate ambiguous business goals into clear technical specifications, ensuring that all feature development and CI/CD pipeline integrations were 100% aligned with client deadlines and acceptance criteria.

Analyst, HCL Technologies, India **Mar 2020 – May 2022**

- Analyzed and resolved complex L2 technical issues for a key client's application portfolio, significantly reducing the average Mean Time to Resolution (MTTR) by 22% and directly contributing to maintaining a 98% client Service Level Agreement (SLA) adherence.
- Conducted deep-dive root cause analysis (RCA) on recurring system defects and performance bottlenecks, identifying a critical data flow issue and implementing a corrective process that prevented over 100 outages in one quarter. Automated key reporting tasks using SQL or Excel VBA to track client-reported metrics and support trends, successfully saving 10 hours of manual data compilation time per week.
- Developed and maintained internal knowledge base articles and support documentation, empowering the L1 support team to independently resolve tickets, leading to a 15% reduction in issue escalation rate to the L2 team.
- Collaborated with cross-functional development teams to translate client bug reports and feature requests into actionable technical requirements, ensuring that 85% of critical fixes were implemented in the subsequent release cycle.

PROJECTs

Bitcoin Volatility Regime Detection and Algorithmic Trading Strategy **Jan 2025 – May 2025**

- Model Development and Evaluation (Focus on Methodology): Engineered a hybrid time-series forecasting pipeline integrating both classical statistical models (e.g., ARIMA, GARCH(1,1) for volatility modeling) Deep Learning models (LSTM/Bi-LSTM) to predict Bitcoin price direction and volatility regimes.
- Quant Metric: Achieved a directional prediction accuracy of 61.5% for next-day returns, significantly exceeding the random baseline of 50%.
- Incorporated exogenous features (e.g., on-chain metrics, Google Trends/Social Sentiment, VIX) to enhance model robustness, demonstrating that a multi-factor approach reduced the final Root Mean Square Error (RMSE) of the price forecast by 14% compared to a univariate model.
- Conducted rigorous stationarity and autocorrelation testing (ADF, KPSS) and employed techniques like log transformation and differencing to ensure the data met the assumptions required for the chosen econometric models.

SKILLs

Quantitative / ML / Data Science: Python (Pandas, NumPy, SciPy, Scikit-Learn, TensorFlow, PyTorch, Keras), Statistical Modeling, Time Series Analysis (ARIMA, GARCH), Machine Learning, Risk Modeling/Oversight, Model Validation, Data Cleaning.
Programming & Backend Development: C++ (Linux, multithreading, concurrency, memory optimization), Python (OOP, Performance Optimization), Shell Scripting (Bash), SQL (Advanced), EQL, RESTful API Development.
Networking Security & Version Control & DevOps: TCP/IP, socket programming, FIX protocol familiarity, LAN/WAN configuration, port security, firewalls (Check Point, network monitoring), secure API integrations, Git/GitHub, CI/CD Principles.
Big Data & Cloud Tools: AWS, Apache Spark, Apache Kafka, Apache Flink, Apache Hive, Alteryx (ETL), Jira (Issue Tracking).
Data Visualization & BI: Tableau (Dynamic Dashboards), Microsoft Excel (Advanced Modeling/VBA).
Governance & Reporting: Delivery Governance Frameworks, SEC/CFTC Compliance, Stakeholder Reporting, Executive Communication.

VOLUNTEER CONTRIBUTION

Software Developer, Rebecca Everlene Trust Company, Chicago **May 2025 – Present**

- Developed and deployed custom integration solution to synchronize data between Salesforce CRM & Monday.com via API endpoints (RESTful/SOAP).
- Streamlined the client's lead-to-project pipeline, reducing manual data entry time by 30% and improving real-time project tracking accuracy.