

Vipeen Kumar

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SUMMARY

PhD candidate in Economics specialising in quantitative research and financial modelling. Expert in Python and AI/ML (ETL, EDA and feature engineering). Proficient in advanced statistical analysis and visualisation with a focus on developing automated data pipelines and financial trading APIs to drive impactful economic and business strategies.

SKILLS

Languages & Tools : Python (Pandas, NumPy, Matplotlib, Streamlit), R (Tidyverse), SQL, Power BI, Tableau, Excel, Stata, Julia, LaTeX, ArcGIS, QGIS.

Techniques : Econometrics, Statistical Modelling, Artificial Intelligence (NLP, Agentic AI, RAG Pipeline, Langchain), Machine Learning (TensorFlow & PyTorch, Scikit-learn, XGBoost), Financial Modelling, Time Series Forecasting, Panel Data Analysis, Predictive Analytics, Geospatial Analysis.

Familiarity with : Snowflake, Cloud Computing (AWS, Azure & GCP), Version Control (Git), CI/CD, Containerisation (Docker & Kubernetes).

Soft Skills : Rapport Building, Stakeholder Management, Problem Solving, Self-learner, Teamwork, Communication

EXPERIENCE

Senior Researcher

Jan 2021 - Jan 2026

Panjab University

Chandigarh, India

Derived actionable insights by developing econometric and financial models along with data science techniques. Utilised GenAI for academic research projects involving primary and secondary research, data analysis and paper presentations. Mentored UG/PG students of University. Organised national & international conferences and webinars focused on AI and Econometrics. Managed administrative tasks including institutional reporting.

Senior Associate

Dec 2019 - Dec 2020

Indiamart Intermesh Ltd.

Chandigarh, India

Boosted lead-to-customer conversion rate by 5% and reduced supplier churn by 15% by fine-tuning matchmaking algorithm and validating user behaviour to optimise category processes. Worked closely with stakeholders articulating and presenting recommendations through dashboards reports, influencing future plans based on insights.

Associate

Aug 2018 - Sept 2019

Innodata India Pvt. Ltd.

Chandigarh, India

Annotated and classified text and image datasets to improve machine learning model accuracy. Performed regular quality audits and updates, adhering to data compliance, governance and accuracy standards.

PROJECTS

End-to-End AI Pipeline | *Python, LangChain, Gemini API, Streamlit, Pandas, NumPy*

Engineered an automated Macro-Agent Forex Volatility Analyst that integrates real-time **financial data pipeline** with custom quantitative models and **LLM-driven reasoning** using LangChain and Google Gemini 3 Flash to translate complex volatility metrics into professional investor briefings.

Financial Modelling | *Python, Matplotlib, Pandas, Numpy, Qfin, Yfinance, Alpaca, SciPy, Plotly, QuantLib*

Developed **financial models** for Option Greeks, Implied Volatility Surface, Stochastic Volatility and Monte Carlo Simulations using the Black-Scholes, Heston and GARCH models. Engineered an automated **algorithmic trading**

pipeline along with backtesting to programmatically ingest multi-year historical equity data matrices and process deterministic, systematic buy/sell execution signals.

Multi-Asset Analyst | *Python, OpenBB, NumPy, Pandas, SciPy, Plotly*

Architected a **multi-asset technical analysis** engine using OpenBB SDK, automating data ingestion for equities, forex and crypto to compute complex volatility and momentum metrics including ATR, MACD, RSI, and Bollinger Bands with 95% less manual intervention.

Macro-Sentiment Dashboard | *Python, Streamlit, pgvector, celery, django,*

Engineered an end-to-end NLP ingestion pipeline to process raw macroeconomic RBI policy documents into hawkish/dovish sentiment scores. Integrated with **RAG (Retrieval-Augmented Generation)** engine to facilitate natural language querying and contextual search across historical databases.

Automated NSE Filing Analyst Platform | *Python, Streamlit, Pydantic, Altair*

Deployed a fully automated **AI stock fundamental analyst** app that converts official NSE corporate filings, covering financial results, orders bagging, concalls etc., into a structured stock research briefing, reducing manual work by 95%.

Machine Learning | *Python, Scikit-learn, XGBoost, Classification, Regression, Logistic Regression*

Developed **frameworks** for predicting credit score using XGBoost and classification of personal income using KNN and Logistic Regression, demonstrating a complete pipeline from data preprocessing to model evaluation and classification.

GitHub Projects & Online Courses

Created several **repositories** on geospatial analysis, AI-enabled plagiarism checker, AI interviewer app, Decision Tree for mapping daily psychological behaviour of employees. Built an interactive **online platform** to host various courses on machine learning, quantitative research, bayesian statistics and econometrics.

CERTIFICATIONS

UGC-NET JRF/SRF: Awarded by Ministry of Education, India, for research in economics.

Business Economics: Passed Business Economics (CB2), Institute of Actuaries of India

Data Analysis: Applied Econometrics and Statistics, SPSS for Statistical analysis and Advanced Panel Data Techniques (Panjab University)

Data Science : Python-Powered ML, R Programming & Excel with AI and Natural Language Processing (Panjab University & Kurukshetra University)

Finance: SEBI-Investor Certification & NISM Management Development Programme in Derivative Strategies.

Public Policy: Data analysis in Public Policy, Centre for Public Policy Research

RESEARCH

Primary Research

Conducted field research for the ASER Survey (Pratham Education Foundation), assessing rural educational outcomes.

Primary research conducted for the Natural Farming and Crop Diversification in the Baddi district of Himachal Pradesh, assessing social capital.

Paper Presentations

“Impact of Exchange Rate Volatility and Capital Formation in India since Liberalisation” (National Seminar, ICSSR NWRC).

“Comparative Analysis of Crowding Out Effect: Punjab vs. Haryana” (International Conference, UBS Panjab University).

“Impact of Energy Transition on Automobile and Steel Industry in India” (National Seminar, Panjab University).

EDUCATION

Panjab University

PhD in Economics (Exchange Rate Volatility)

In Progress

Chandigarh

Panjab University

Master of Arts in Economics (Econometrics and Quantitative Methods)

Aug. 2017 – July 2019

Chandigarh

Panjab University

B.A. (Hons.) Economics, Mathematics and Statistics

Aug. 2014 – July 2017

Chandigarh