Sumant Jadiyappagoudar

+91 8554017637 | sumantjadiyappagoudar@gmail.com | linkedin.com/in/sumant-jadiyappagoudar
github.com/Sumant40 | sumantj.xyz

Education

MIT World Peace University — Pune, Maharashtra
B.Tech in Bioengineering — *Graduated: 2025 | CGPA: 9.0/10.0*

Technical Skills

Languages & Analysis:	Python, R, SQL (PostgreSQL), Pandas, NumPy, Excel (Advanced)
Machine Learning:	scikit-learn, XGBoost, SMOTE, DistilBERT, TF-IDF, KNN, K-Means
Visualization & BI:	Power BI, Tableau, Plotly, Matplotlib, Seaborn, Streamlit
Bioinformatics:	Biopython, BLAST, NCBI, DEG Analysis, Biomarker Discovery
Dev Tools:	FastAPI, ChromaDB, LLaMA 3, n8n, RESTful APIs, Git/GitHub

Experience

Undergraduate Research Intern – Biomaterials & Piezoelectric Nanogenerators *Jul 2024 – Jan 2025*
Fibroheal Woundcare Pvt. Ltd., Bengaluru, Karnataka

- Fabricated Chitosan/MoS_2 piezoelectric composite films achieving consistent 350–400 mV voltage output at 0.02 mm thickness, validating viability for wearable biosensor applications.
- Identified optimal chitosan–glycerol formulation (0.5% glycerol) reducing film thickness by 44% while improving flexibility, directly informing material selection for wound-dressing R&D.
- Characterized 11 film variants (SEM/XRD + mechanical testing), diagnosing failure modes and refining protocols to improve yield and reproducibility across experimental batches.

Projects

Pharmacovigilance Signal Detection — FDA FAERS | *Python, Pandas, Plotly, Streamlit, SciPy, Scikit-learn*
Live App | GitHub | *2026*

- Analyzed 528K adverse event records (2015–2025); detected 8,920 drug-reaction signals (1,403 high-priority) using PRR and ROR disproportionality analysis with 95% confidence intervals.
- Built 4-tab Streamlit dashboard covering signal exploration, quarterly time-series trends, and logistic regression outcome modelling; surfaced odds ratios by drug, reaction, and demographics for clinical prioritisation.
- Leveraged bioengineering domain knowledge to contextualise flagged signals (e.g., Montelukast neuropsychiatric effects, Levonorgestrel uterine perforation) against known pharmacological mechanisms.

BioRAG — Bioinformatics Research Assistant | *Python, ChromaDB, FastAPI, Groq, LLaMA 3, PubMed-BERT, BM25*
Live App | GitHub | *2026*

- Built a production-ready RAG system querying PubMed, UniProt, and KEGG via natural language; hybrid BM25 + PubMed-BERT dense retrieval with cross-encoder re-ranking delivers citation-grounded answers with inline PMID links.
- Implemented agentic query routing detecting gene symbols, pathway IDs, and recency signals; triggers live PubMed API lookups for time-sensitive queries, preventing stale answers in a fast-moving field.
- Deployed FastAPI backend with ChromaDB persistent vector store and a dark-themed research UI; ingestion pipeline processes 50 PubMed abstracts per call into 130+ retrievable chunks with no re-ingestion on restart.

E-Commerce Sales Analysis — Olist | *Python, DuckDB, XGBoost, SHAP, Optuna, BG/NBD, Streamlit*
Live App | GitHub | *2026*

- Performed end-to-end analysis on 99K+ orders: KMeans segmentation (k=6), XGBoost churn prediction (ROC-AUC 0.65–0.70 tuned via Optuna), and 12-month CLV modelling via BG/NBD + Gamma-Gamma.
- Engineered 25+ RFM and behavioural features using a DuckDB star schema; handled class imbalance with SMOTE; interpreted model globally and locally with SHAP beeswarm and waterfall plots.
- Identified that top 20% of customers drive 65%+ of projected CLV; assigned Bronze/Silver/Gold/Platinum tiers and deployed a live 4-tab Streamlit dashboard for business stakeholder review.

Achievements / Extracurricular

- Recipient, MIT-WPU Merit Scholarship II (25%) — First Year.
- **1st Prize**, Best Poster Presentation — Bioconclave Hackathon, Capstone Project.
- Received appreciation letter for outstanding performance in National Academic Immersion Program.
- Class Representative; Member, AIChE Student Chapter, MIT-WPU.