

# SANIA JAIN

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## EXPERIENCE

### Summer trainee

May 2025 - Jun 2025

*Defence Research and Development Organisation*

*New Delhi*

- Developed and deployed Employee Information System using RESTful APIs in .NET Core (C#), automating data workflows and reducing manual processing time by 60%, saving 4+ hours weekly.

### Data Analyst Intern

Nov 2023 - Jan 2024

*Alankar*

*Bhopal, Madhya pradesh*

- Achieved a 15% increase in bookings by analyzing seasonality patterns and recommending targeted marketing strategies tailored to the primary guest age group of 34-50 years.
- Proposed expanding car parking spaces by analyzing trends, resulting in a 10% increase in bookings by enhancing guest convenience and smoother operations.
- Developed an interactive dashboard to visualize key hotel metrics using **Power BI** supported by **SQL** queries to prepare data.

## PROJECTS

### AI assistant with MCP server and tools using Langchain — GenAI

- Developed a Modular AI Assistant Architecture by combining **LangChain** prompt chaining with Model Context Protocol (MCP) servers, enabling dynamic tool integration and flexible dialogue workflows adaptable to diverse use cases.
- Optimized Real-Time Inference with Groq Acceleration, integrating ultra-fast **LLM** engines to achieve sub-second response times and support deployment across platforms such as Slack and Discord.
- Orchestrated a Secure Client-Server Tool Ecosystem by building an MCP-based backend that exposed custom tools via REST/stdio and connecting them through **LangChain** adapters, ensuring +90% success rate in tool execution.

### Churn Prediction with Time-to-Event Modeling — BCG Data science Simulation Extension

- Developed a time-to-event churn prediction model using Survival Analysis (Cox Proportional Hazard) achieving 83% accuracy, 0.47 Brier Score and 0.72 C-index, shifting from binary classification to a time-dependent framework to pinpoint optimal intervention timing.
- Engineered a **scalable ML pipeline** with **XGBoost**, Streamlit, and SHAP, automating **preprocessing** and daily inference for 5,000+ customer records.
- Enhanced model transparency by integrating SHAP explainability, enabling business teams to identify key behavioral drivers of attrition such as night calls and evening usage.

### A Hybrid ML-DL architecture for accurate and non-invasive brain tumor classification

- Processed and analyzed a dataset of 10K+ MRI images to ensure data quality and scalability, resulting in reliable inputs for advanced tumor classification modeling.
- Achieved 84.77% accuracy and 0.91 precision in brain tumor classification by structuring, cleaning, and preparing large-scale data for a **PSO-optimized CNN-SVM model**.
- Developed a hybrid **CNN-SVM model** optimized via **Particle Swarm Optimization (PSO)** for MRI-based brain tumor classification, achieving 84.77% accuracy, a macro-average F1 score of 0.80, and 0.91 precision across four tumor categories.
- Enabled reliable non-invasive diagnosis by improving classification robustness, supporting early detection and treatment planning while minimizing reliance on invasive surgical biopsies.

### TATA iQ GenAI Predictive Credit risk modeling

- Conducted **exploratory data analysis** on 500+ customer records, identifying high-risk segments and addressing data gaps to strengthen delinquency prediction accuracy.
- Developed and presented AI-powered predictive models (logistic regression, decision trees) to assess credit delinquency risk, ensuring compliance and fairness through regular bias audits.
- Designed an autonomous AI-powered collections system projected to reduce 30+ day delinquency rates by 15%, enhancing operational efficiency.

**EDUCATION**

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**Bachelor of Technology**, VIT Bhopal University  
CGPA: 8.26/10

Aug 2022 - Present

**SKILLS**

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**Technical Skills**

Python, Power BI, SQL, Git, GitHub, MS Excel, AWS, C/C++, Google Docs, Google Colab

**CERTIFICATIONS**

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**Google Data Analytics Professional Certificate**

- Executed SQL queries (MySQL, MS SQL) and built Tableau dashboards on large datasets of up to millions of rows, improving data accessibility and enabling 50% faster management decisions.

**LEADERSHIP**

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- Organized 3+ technical events fostering an inclusive developer community, engaging over 300 participants, and coordinating cross-functional event logistics.
- Awarded 2nd Runner-up at IEEE Ideathon and 1st Runner-up at Notion Startup Competition for a scalable phone repair concept, gained hands-on experience in strategic planning and innovation.