

ABHISHEK BALA

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Education

National Institute of Technology, Rourkela

Dec 2021 – May 2026

Integrated B.Tech – M.Tech Dual Degree in Ceramic Engineering — CGPA: 8.00

Rourkela, Odisha

Technical Skills

- **Programming Languages:** Python, SQL, TypeScript, JavaScript
- **Databases:** PostgreSQL, MySQL, BigQuery, MongoDB, Neo4j, Vector Databases, ChromaDB, FAISS
- **Data Science & Analytics:** Pandas, NumPy, SciPy, PySpark, Matplotlib, Seaborn, Exploratory Data Analysis, Feature Engineering, Data Cleaning, Data Visualization, Statistical Analysis, Hypothesis Testing, A/B Testing, Time Series Analysis
- **Machine Learning & Deep Learning:** Scikit-learn, XGBoost, LightGBM, TensorFlow, Keras, PyTorch, Predictive Modeling, Classification, Regression, Model Evaluation, Hyperparameter Tuning, Model Optimization, SHAP, LIME
- **Generative AI & NLP:** LangChain, LangGraph, RAG, Agentic AI, Multi-Agent Systems, AutoGen, CrewAI, Prompt Engineering, Fine-tuning, LLM APIs, OpenAI, Groq, OpenRouter, HuggingFace Transformers, SpaCy, NLTK, Text Classification, Sentiment Analysis
- **Backend, Cloud & MLOps:** FastAPI, REST APIs, Docker, GCP, Azure AI Foundry, Streamlit, Gradio, MLflow, Git, GitHub, CI/CD, Web Scraping, BeautifulSoup, Scrapy

Work Experience

L&T Finance

Jan 2026 – Jul 2026

AI/ML Intern

Mumbai, India

- Developed a **Pre-Delinquency prediction model** using **XGBoost** with feature engineering on **500K+ loan records**, achieving **92% accuracy** and enabling early identification of at-risk accounts **30 days before default**.
- Created a **Customer Churn prediction pipeline** using Scikit-learn and LightGBM, performing EDA, data preprocessing, feature selection, class imbalance handling with **SMOTE**, and improving recall by **25%** over the baseline model.
- Architected **KAI**, an Agentic AI and RAG-based chatbot using **LangGraph**, vector databases, and LLM APIs for autonomous financial reasoning over internal knowledge bases, reducing manual query resolution time by **40%**.
- Implemented custom **MCP Servers** and orchestrated agent workflows on **Azure AI Foundry and GCP** using Docker, enabling autonomous tool-calling across multiple enterprise data sources.

Projects

Claw Agent | Bun, TypeScript, OpenRouter, Vercel AI SDK, Telegram, Firecrawl

GitHub Link

- Created a **local AI workspace agent** with **Ask, Plan, and Agent modes** to inspect codebases, generate implementation plans, and execute approved developer tasks through an interactive CLI.
- Built **tool-calling workflows** for file reading, file creation, code modification, folder operations, web search, shell command staging, and human-in-the-loop approval.
- Integrated **Telegram bot control** with owner authentication, inline approval buttons, staged diff review, and remote execution support for AI agent tasks.

BrowserAgent GPT-Navigator | Python, Puppeteer, OpenAI GPT, MCP Agents

GitHub Link

- Designed an **Agentic AI browser automation system** using OpenAI GPT and MCP-style agents to navigate websites, interact with web pages, and extract content from **50+ pages** in real time.
- Integrated **Puppeteer-based DOM parsing** with summarization, browser control, and task automation, improving browsing efficiency by **3x** over manual workflows.

GraphMovieQA-Groq | Neo4j, LangChain, Groq, Cypher, Knowledge Graphs

GitHub Link

- Launched an **AI-powered question-answering system** over a **Neo4j knowledge graph** with **1000+ movie nodes**, using LangChain and Groq LLMs for natural language querying.
- Converted natural language questions into **Cypher queries** through graph-based retrieval pipelines, enabling grounded and context-aware answers over structured data.

Achievements

AlgoSwarm Hackathon – Top 10 among 10K+ teams India-wide (2023) [Certificate]

- Designed an end-to-end time-series machine learning pipeline with 30+ engineered features, XGBoost modeling, SHAP explainability, walk-forward validation, Optuna tuning, and risk modeling including VaR, volatility, and drawdown.