Ayush Kumar Verma – Personal & Professional Profile

1. Life Story (Summary)

- Master's student in Mathematics and Computing at IIT Dhanbad (GPA: 7.43/10).

- Passionate about AI, generative and agentic systems, and building tools that assist humans in real-world tasks.

- Bachelor of Science in Mathematics from Dr. Rammanohar Lohia Avadh University, with a strong foundation in analytical thinking and problem-solving.

- Strong foundation in **algorithmic thinking, statistical modeling, and applied mathematics,** enabling me to design AI solutions for practical challenges.

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2. Superpower

- Designing **agentic AI systems** that autonomously plan, decide, and execute tasks efficiently while interacting with humans (Human-in-the-Loop workflows).

- Skilled in **LangGraph, AI agents, workflow orchestration, LLMs, and RAG embeddings**, allowing creation of modular, robust, and user-centric AI systems.

- Able to combine **generative AI and decision intelligence** for solving complex, real-world problems.

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3. Motivation & Drive

- Motivated by creating **AI tools that augment human decision-making,** not just automate processes.

- Driven by curiosity to **push the boundaries of agentic AI**, multi-agent coordination, and HITL workflows.

- Enjoy tackling **complex, ambiguous problems** where AI must interact with humans, data, and multiple systems.

- Inspired by seeing AI solutions make a tangible impact in efficiency, safety, and accessibility.

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4. Handling Challenges

- Break down complex problems into **smaller modules**, iterate quickly, and integrate feedback from humans and AI models.

- Embrace **failure as a learning opportunity**; experiment with different workflows and optimization techniques.

- When under tight deadlines, I **prioritize tasks and design scalable AI pipelines** to ensure results without compromising quality.

- Adaptable to new tools and technologies, learning on the fly to overcome technical gaps.

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5. Top Growth Areas

- Enhancing **multi-agent coordination** for complex real-world tasks.

- Advanced **model optimization** for large-scale AI systems.

- Creating highly **human-centered AI solutions** that improve user trust and accessibility.

6. Misconceptions by Coworkers

- People often assume the AI systems I design **fully automate tasks,** but most rely on **Human-in-the-Loop (HITL) workflows** for safe and accurate outcomes.

- I focus on **collaboration between humans and AI** rather than replacing human judgment.

7. How I Push Boundaries

- Experiment with **modular AI orchestration** and multi-agent interactions for real-world applications.

- Continuously integrate external APIs and create **UI-ready outputs** for seamless human interaction.

- Take on challenging internships and projects to **test model limits,** improve robustness, and enhance performance.

8. Education

Indian Institute of Technology (ISM), Dhanbad — M.Sc. Mathematics and Computing (Jul 2024 – May 2026)
Relevant Coursework: Data Structures & Algorithms, Data Mining, Big Data, Design and Analysis of Algorithms, Database Management, SQL, Operating Systems, Statistical Inference

Dr. Rammanohar Lohia Avadh University, Ayodhya — B.Sc. Mathematics (Jul 2020 – Jun 2023)
Relevant Coursework: Real Analysis, Numerical Methods, Linear Algebra

9. Skills Summary

Programming & Data Analysis: Python (Pandas, NumPy, Matplotlib), SQL, C++, EDA, Data Cleaning

Machine Learning & Deep Learning: Supervised/Unsupervised Learning, Neural Networks, NLP, TensorFlow
Generative AI: LLMs, LangChain, Prompt Engineering, RAG, Embeddings
Agentic AI: LangGraph, AI Agents, Workflow Orchestration (Sequential, Parallel, Conditional), Streaming, HITL
Soft Skills: Problem Solving, Analytical Thinking, Communication, Business Understanding

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10. Work Experience

AI Engineer Intern, Zetheta Algorithms Pvt. Ltd. (May 2025 – Jul 2025)

- Developed backend NLP microservices for career prediction, skills gap analysis, job readiness scoring, and candidate-job matching.

- Collaborated with a 4-member backend team to train ML models achieving **91% prediction accuracy**.

- Learned to handle **project deadlines and cross-functional collaboration** effectively.

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11. Projects

Multi-Agent Trip Planning System (Dec 2025 – Jan 2026)

- Designed a **state-driven agentic AI system** using LangGraph for flights, hotels, weather, and LLM-based travel intelligence.

- Implemented **Human-in-the-Loop (HITL)** decision workflow for user selection and itinerary synthesis.

- Integrated multiple external APIs and generated **UI-ready outputs**.
  Technologies: LangGraph, LLMs, HITL, Streamlit, APIs

Property Analytics Platform (Apr 2025 – May 2025)

- Built an end-to-end property analytics & investment platform with price prediction, ROI

estimation, and market trend analysis.

- Achieved **R² = 0.90** on ML models and created **intuitive dashboards** for non-technical users.
  Technologies: Python, Data Analytics, ML, Visualization

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12. Competitive Programming

- Codeforces: Specialist (Max Rating: 1456)

- LeetCode: Top 10% globally (Max Rating: 1739)

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13. Courses & Certifications

- Data Science Mentorship Program 2.0 – CampusX

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14. Interests

- Creating useful AI agents that help humans in **real-world tasks**.

- Exploring **agentic orchestration, HITL workflows, LLM integration, and multi-agent systems**.

- Following **emerging trends in AI** and integrating them into practical applications.