

Omkar Kottawar

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EDUCATION

VIT Bhopal University - 8.96 CGPA

B.Tech. in Computer Science and Engineering

Sehore, MP
Sep 2023 – Expected May 2027

Datta Meghe World Academy - 8.10 GPA

Higher Secondary Certificate

Mumbai, MH
June 2022 – Apr 2023

Datta Meghe World Academy - 9.50 GPA

Secondary School Certificate

Mumbai, MH
June 2021 – Apr 2022

TECHNICAL SKILLS

Programming Languages: Python, JAVA

Deep Learning Frameworks: PyTorch

Libraries & Tools: NumPy, Pandas, Scikit-learn, Matplotlib, Streamlit

Cloud Platforms: AWS (Foundational), Oracle Cloud Infrastructure (OCI)

Design Tools: Adobe XD, Figma, Penpot

PROJECTS

Index Options Analytics Engine

Derivatives Pricing & Volatility Analysis Tool

Nov 2025 – Dec 2025
Python, Streamlit, Pandas, Matplotlib

- Developed a derivatives analytics engine implementing Black-Scholes pricing, Greeks computation, and implied volatility extraction for index options.
- Integrated real NSE NIFTY/BANKNIFTY option chain CSV data by implementing a robust ingestion pipeline with automatic numeric sanitization and strike parsing.
- Developed an implied volatility solver using a numerical bisection method, enabling extraction of IV across all strikes and maturities.
- Implemented IV cleaning, ATM detection, and smile/skew analysis to study volatility structure and market behaviour in index options.

TorchML - Fundamental ML Algorithms from Scratch

Machine Learning Educational Framework

Aug 2025 – Present (WIP)
Python, PyTorch, NumPy, Matplotlib, Scikit-learn

- Developing a comprehensive library of core machine learning algorithms implemented from scratch in PyTorch to demonstrate deep understanding of mathematical foundations and optimization techniques.
- Built modular architecture with standardized base classes, comprehensive unit tests, algorithm comparison frameworks, and interactive visualization tools for educational demonstrations.
- Designed for extensibility with planned neural networks, tree-based methods, and clustering algorithms sections to create a complete ML educational resource.

ReviewSense - A Fuzzy Logic Satisfaction Analyzer

Data Science Project

July 2025 – Aug 2025
Python, Fuzzy Logic, Pandas, Matplotlib, Scikit-fuzzy

- Built an AI system using fuzzy logic to analyze customer satisfaction from e-commerce reviews, providing transparent rule-based classification with numerical scores (0-10) and categorical levels (Low/Medium/High).
- Created feature extraction pipeline combining sentiment analysis and review length metrics, with customizable fuzzy membership functions that adapt to different business requirements and customer feedback patterns.
- Developed end-to-end workflow that processes raw review datasets, applies linguistic analysis and fuzzy inference, then exports enriched results to CSV for business intelligence and analytics dashboards.

Finsight – AI-Powered Bank Statement Analyzer

Machine Learning Project

Jan 2023 – Feb 2023
Python, Streamlit, Pandas, Matplotlib

- Developed a full-stack financial analysis tool using a Python/Pandas back-end and an interactive Streamlit front-end to process and visualize bank statements.

- Engineered features that parse and auto-categorize transaction data, enabling detailed overall spending vs. income analysis, recurring transaction identification, and anomaly detection for fraud prevention.
- Integrated a natural language query interface that allows users to ask financial questions and receive AI-powered responses, enhancing interactive data exploration.

PUBLICATIONS

Research Paper – Transparent Decision Support with xRFNN (Explainable Rough–Fuzzy Neural Network)

Manuscript Completed

Sehore, MP

- Developed xRFNN, a deep residual rough–fuzzy architecture integrating Gaussian fuzzification, continuous rough approximations, and a Tri-Modal Attention mechanism to model ambiguity-aware decision boundaries.
- Designed a Learnable Rough Layer with 256 prototypes enabling differentiable lower/upper approximations, reducing traditional rough-set complexity.
- Implemented a stable Deep Residual Core using GELU activations, LayerNorm, dropout, and skip connections, improving fold-level variance across medical and financial datasets.
- Built a dual-layer interpretability framework combining tri-modal attention visualizations, core feature-importance mappings, and symbolic rule extraction via shallow decision-tree surrogates.
- Conducted experiments on UCI Breast Cancer, German Credit, and Pima Diabetes datasets using polynomial feature expansion, SelectKBest, and SMOTETomek preprocessing; demonstrated strong stability and competitive AUC performance.

CERTIFICATIONS

Oracle Cloud Infrastructure (OCI) Certified AI Foundations Associate, Oracle University (2025 - 2027)

The Bits and Bytes of Computer Networking, Google (2025)

Introduction to Machine Learning, NPTEL (2025)

Elements of AI, University of Helsinki (2021)

ADVANCED TRAINING

AWS Cloud Practitioner Essentials Course

Aug 2025

GeeksforGeeks

Online

- Completed a comprehensive course covering core AWS services, cloud architecture, security, compliance, and billing models in preparation for the official certification exam.

Introduction to Quantum Computing

Oct 2020 - May 2021

Qubit X Qubit

Online

- Developed a foundational understanding of quantum computing, with topics including introductory linear algebra, coding with Qiskit, quantum mechanics, quantum algorithms, and quantum applications.

EXPERIENCE

General Secretary

Present

Cisco Community VITB

Sehore, MP

- Promoted to General Secretary, overseeing strategic operations, team coordination, and community growth initiatives across all organizational functions.
- Drive strategic planning for community expansion, stakeholder relationships, and campus-wide engagement programs that enhance student participation and professional development.

Design Team Co-Lead

May 2024 - July 2025

Cisco Community VITB

Sehore, MP

- Promoted to Design Co-Lead, leading the end-to-end design strategy for community branding, event visuals, and digital outreach.
- Directed the visual identity for 8+ major events, including workshops, hackathons, and collaborative sessions with industry mentors.
- Mentored junior design contributors, ensuring design consistency and skill development across the team.
- Spearheaded creative campaigns that improved event visibility and student engagement across campus.
- Played an integral role in scaling the community's impact and visibility within the campus and online.