Debasish Sahu

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RESEARCH SUMMARY

Independent researcher with a focus on emerging technologies and interdisciplinary analysis. Primary research expertise spans blockchain systems, artificial intelligence, machine learning, and cryptocurrency technologies, with emphasis on practical implementation and system-level understanding. Published author of 15+ technical articles examining infrastructure dependencies, scalability challenges, and real-world constraints in distributed systems. Committed to continuous learning and exploring diverse research areas across both technical and non-technical domains to develop well-rounded analytical perspectives.

EDUCATION

Centurion University of Technology and Management   Bhubaneswar, Odisha
Bachelor of Technology in Computer Science; CGPA: 8.2/10.0   *Sep 2021 – Jun 2024*
- Completed 6 semesters with specialization in Blockchain, AI, Machine Learning, and Data Science
- No backlogs throughout academic tenure; Plan to complete final year in future

Gopabandhu Junior College   Anantapur, Odisha
Higher Secondary Education (10+2), Science (PCM); 77.33%   *2019 – 2021*
UN High School   Anantapur, Odisha
Secondary School Certificate (10th); 74.83%   *2019*

EXPERIENCE

Independent Researcher   Nov 2025 – Present
Blockchain & AI Systems Research   *Remote*
- Conducting system-level research on blockchain infrastructure dependencies and centralization patterns in Web3
- Analyzing scalability constraints and the gap between decentralization theory and production reality
- Publishing technical research on distributed systems architecture and real-world implementation trade-offs
- Investigating AI model behavior, training methodologies, and optimization techniques for large-scale systems

AI Model Trainer   Sep 2024 – Mar 2025
Outlier (Contractual, Part-time)   *Remote*
- Trained and optimized AI models for outlier detection, anomaly identification, and predictive analytics
- Developed custom machine learning algorithms and implemented automated data processing pipelines
- Conducted hands-on research in model evaluation, feature engineering, and algorithm optimization
- Worked with large-scale datasets to improve model accuracy and reliability

Blockchain Developer Intern   Sep 2023 – Oct 2024
Mittiland   *Bhubaneswar, Odisha*
- Developed two blockchain-based prototypes focusing on decentralized applications and smart contracts
- **Property Trading Platform:** Built prototype for buying and selling properties using cryptocurrency with Web3 wallet integration, user authentication, and secure transaction processing
- **NFT Marketplace:** Created NFT buy-sell platform enabling users to mint NFTs, set custom prices, list for sale, and transfer ownership through smart contracts
- Implemented Web3.js integration for seamless blockchain interactions and wallet connectivity
- Designed and deployed smart contracts on Ethereum testnet with security best practices

PUBLICATIONS & RESEARCH WORK

Springer Book Chapter (Lead Author)   Feb 2025
- **Enhancing Smart City Retail: An Innovative IoT Driven Smart Billing-Enabled Shopping Cart**
- Published in "Explainable IoT Applications: A Demystification" by Springer Nature
- Available at: link.springer.com/chapter/10.1007/978-3-031-74885-1_12

Technical Research Articles   2023 – Present
- Authored 15+ in-depth technical articles on blockchain infrastructure, AI systems, and distributed technologies
- View complete research portfolio: debasish-sahu.notion.site
- Additional research papers submitted for publication; Actively continuing research and writing

Technical Projects

NFT Infrastructure: Dynamic Metadata & Rental Economy | *Solidity, Web3.js, IPFS*   2023
- Developed NFT marketplace with advanced features including dynamic metadata and fractional ownership
- Implemented rental economy system for NFTs enabling temporary ownership transfers
- Built smart contracts for secure NFT trading, minting, and ownership management on Ethereum

Real-Time Financial Market Analysis & Predictive Insights | *Python, Machine Learning*   2025
- Built system for real-time financial market data analysis using Python and ML algorithms
- Implemented predictive models for market trend forecasting and investment insights
- Developed data visualization dashboards for comprehensive market analysis

Decentralized Blockchain-Based Voting System | *Solidity, Smart Contracts*   2023
- Created secure and transparent voting system using Solidity smart contracts on blockchain
- Implemented tamper-proof vote recording and automated vote counting mechanisms
- Ensured voter anonymity while maintaining transparency and auditability

Decentralized Medical Data Storage System | *IPFS, Web Technologies*   2024
- Designed decentralized healthcare data storage system using IPFS for secure patient records
- Implemented data encryption and access control mechanisms for privacy protection
- Enabled secure sharing of medical records between authorized healthcare providers

Resume Screening Tool | *Python, NLP, Machine Learning*   2024
- Developed NLP-based classification system for automated resume screening and candidate ranking
- Implemented text processing pipeline using NLTK and Scikit-learn for information extraction
- Built machine learning model to classify and rank candidates based on skill matching

Devanagari Character Recognition System | *TensorFlow, CNN, Deep Learning*   2024
- Designed and trained Convolutional Neural Network for handwritten character recognition
- Achieved high accuracy through architecture optimization and data augmentation techniques
- Implemented end-to-end pipeline from image preprocessing to digital text conversion

COVID-19 Insight Dashboard | *Python, Data Visualization*   2024
- Created interactive dashboard for COVID-19 data analysis and visualization
- Implemented real-time data tracking and trend analysis for pandemic insights
- Developed comprehensive visualization tools for data-driven decision making

Technical Skills

Programming Languages: Python (Proficient), JavaScript, Solidity, SQL, C, HTML, CSS, Bash
AI/ML Frameworks: TensorFlow, Keras, PyTorch, Scikit-learn, JAX, NLTK, XGBoost
Blockchain Technologies: Ethereum, Smart Contracts, Web3.js, IPFS, NFT Development, DApp Development
Tools & Platforms: Git, Linux, AWS, Jupyter, MySQL, MetaMask, MS Word, Overleaf, LaTeX
Core Competencies: Research & Technical Writing, Data Analysis, System Architecture, Problem Solving

Honors & Awards

All India Rank 4   2023
- AGRITHON 2023 National Hackathon at IIT Tirupati

2nd Position, Smart India Hackathon   2023
- Inter-College Smart India Hackathon Competition

5-Star Rating on HackerRank   2023
- Python Programming and Problem Solving

Certifications

AWS Academy Graduate - Cloud Foundations   Mar 2023
- AWS Academy certification covering cloud computing fundamentals and AWS services (20 hours)

Blockchain Technology & Its Applications   Nov 2022
- Five-day intensive workshop organized by IIT Madras in association with Mechanica

Cyber Security (Short Course)   Apr 2023
- Oxford Home Study Centre certification in cybersecurity fundamentals

View All Certificates
- Complete certification portfolio available here