ASHMITA PANDEY

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SKILLS

Languages	Python, Java, JavaScript, TypeScript, C, C++, Solidity, Go, Rust
Frameworks	React.js, Node.js, Express.js, Django, Flask, Angular
ML Frameworks	Numpy, Pandas, Scikit Learn, LangChain, TensorFlow, Pytorch, OpenCV
Blockchain	Ethereum, Solana, Hardhat, Truffle, Web3.js, Ethers.js, zk-SNARKs, zk-STARKs, zkTLS, Circom
Database	MySQL, PostgreSQL, MongoDB, Redis, Hadoop
Other	Postman, Jenkins, Docker, Kafka, Kubernetes, REST API, OAuth, Dune, IPFS, The Graph

EXPERIENCE

Dapi Inc. — San Francisco, CA
Software Engineer — Feb 2025 - Present

- Architected TaskNet, a secure, distributed infrastructure for AI agents using browser-based nodes running in Dockerized virtual machines and blockchain-based authentication/micropayments, enabling over 10,000 autonomous AI agent executions per day and reducing orchestration latency by 30%.
- Orchestrated agent-to-agent workflows, incorporating MCP and A2A protocols with support for payments and verification; added video and image generation toolchains, and used LangChain to debug prompts via GAIA and Mind2Web benchmarks boosting agent task success rates by 25%.
- Implemented TEE and ZkTLS-based attestation across TaskNet nodes, ensuring cryptographic task verification and improving execution integrity by 35%.

University at Buffalo — Buffalo, NY
Graduate Research Assistant — May 2024 - Feb 2025

- Engineered a blockchain-anchored data-provenance system for ML pipelines: stored curated training datasets on IPFS and used a Solidity contract with zk-SNARK proofs to cryptographically anchor data checksums on Ethereum, reducing corrupted-data incidents by 40% and ensuring auditability of every model input.
- Deployed a PyTorch-based anomaly detection model on on-chain transaction data ingested via The Graph; flagged suspicious transactions and logged alerts through a Solidity "FraudWatch" contract, cutting average fraud-response time by 50%.

One Community Global — San Gabriel, CA
Software Engineer Intern — Aug 2024 - Dec 2024

- Developed an AI-powered volunteer-task matching system using Scikit-learn's KMeans clustering to group volunteers based on skill vectors, availability windows, and timezone proximity. Integrated the model with a Flask backend and PostgreSQL database to optimize assignments, increasing task fulfillment rate by 35% across 20+ weekly projects.
- Constructed a real-time project analytics dashboard using React.js, Node.js, and Socket.IO, visualizing engagement metrics and task progress using Chart.js. Reduced manual status reporting overhead by 40%.

Nepal Academy of Science and Technology — Kathmandu, Nepal
Software Engineer — Jun 2020 - Jul 2022

- Awarded a national grant out of 200+ proposals to develop a blockchain-based e-voting system for secure and transparent elections, funded by the Nepal Government under the Innovation for prosperity program.
- Designed a decentralized voting protocol using Ethereum smart contracts (Solidity), incorporating Elliptic Curve Cryptography (ECC) for voter signature validation and Merkle trees for ballot integrity verification.
- Developed the full-stack application using React.js, Web3.js, and IPFS for ballot data storage, enabling verifiable, censorship-resistant vote auditing and achieving a 99.8% ballot integrity rate across simulated test environments.

EDUCATION

MS in Computer Science and Engineering, University at Buffalo, The State University of New York — 2023 - 2024
Relevant Coursework: Algorithms, Machine Learning, Data Intensive Computing, Distributed Systems, Database Systems
Bachelor of Engineering in Computer Engineering, Kathmandu Engineering College (Tribhuvan University) 2015 - 2019

PROJECTS

Taco-DB Database System (Capstone) — University at Buffalo
Built a relational database in C++ with custom file I/O, buffer management, B-Tree indexing, and support for external sorting and join algorithms. Optimized for performance and validated on TPC-H workloads and 28+ system tests, reducing disk I/O latency by 35%.

Adversarial Attack Analysis in AI — University at Buffalo
Analyzed a pre-trained NSFW detection model's robustness by launching adversarial attacks using Fast Gradient Sign Method (FGSM) and Projected Gradient Descent (PGD). Demonstrated how minor perturbations significantly reduced model confidence and highlighted vulnerabilities to more complex adversarial inputs.