

Kumar Utkarsh

Indian Institute of Technology Guwahati, India
Bachelor of Technology in Data Science and Artificial Intelligence

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Expected Graduation: May 2028

PROJECTS

Gas Optimizer

Feb 2026 – Mar 2026

Kriti 2026, Inter Hostel Technical Competition, IIT Guwahati

GitHub

- Engineered a gasless Ethereum transaction platform leveraging EIP-712 typed signatures, EIP-2771 trusted forwarding, and a Fastify relayer to batch smart contract calls, achieving up to 45% user gas savings.
- Developed a responsive React, Vite, and wagmi frontend featuring real-time relayer health monitoring, secure wallet authentication, and an interactive analytics dashboard for comprehensive on-chain gas tracking.
- Validated via comprehensive Foundry unit, fuzz, and invariant tests across 7 core Solidity contracts on Sepolia.

INITIA Gaming Infrastructure

Apr 2026

Hackathon Project, INITIA Hackathon

GitHub

- Built a permissionless gaming protocol on MiniEVM where registerGame() auto-deploys ERC-20, ERC-1155, and AMM pools; integrated ERC-6551 Token Bound Accounts for unified cross-game identity across 20 contracts.
- Engineered a GasPayermaster (ERC-2771) enabling gas payment in any token via on-chain DEX swaps with IBC L1 bridge.
- Shipped React + Vite frontend with session keys and 1,500+ lines of Hardhat tests providing complete E2E coverage.

SignalMarket – Decentralized Prediction Market on Initia MiniEVM

Apr 2025

INITIA Hackathon Submission

GitHub

- Engineered a full-stack prediction market on Initia MiniEVM with 8 Solidity contracts covering a parimutuel AMM with on-chain Gaussian CDF/PDF pricing (GaussianMath.sol), reputation system, and a lending vault.
- Designed ForecasterReputation engine computing per-user accuracy, calibration, and recency decay to lower fees.
- Built PositionVault lending pool with utilization-based interest, ERC-1155 collateral, and 85% auto-liquidation.

EnergyChain – Decentralized Carbon Credit & P2P Energy Trading

Jan 2025 – Feb 2025

Kriti, IITG Tech Competition

GitHub

- Developed a Solidity smart contract for P2P energy and carbon credit trading with an IoT pipeline that formats meter readings to JSON, pins to IPFS, and anchors CIDs on-chain through EmissionsTracker on Sepolia.
- Integrated zk-SNARK proofs (Circom to WASM + .zkey) for zero-knowledge verification of energy token ownership.
- Shipped a React, TypeScript, and Tailwind frontend with MetaMask connection, prosumer dashboard, and IoT simulation.

ACHIEVEMENTS

Summer of Bitcoin 2026 Selected for global open-source Bitcoin & Lightning Network development program.	2026
Smart India Hackathon Led Blockchain PS team to 4th position, top 30 campus teams for Nationals.	2026
CodeChef 4 Star (1826 rating); All-India Rank 23 in Starters 234 – neat_glim_65.	2025
Codeforces 1512-rated competitive programmer, Div 2/3 contests – Kumar_Utkarsh9263.	2025
WorldQuant BRAIN Team Rank 2000 among 80,000+ teams in global quantitative finance competition.	2025
Octant v2 DeFi Hackathon Community-choice (most-liked) project among all submissions.	2025
WEB3CLUBS Cohort 10 Completed intensive blockchain program on smart contracts and DeFi.	2025

TECHNICAL SKILLS

Languages: C, C++, Solidity, Python, JavaScript, TypeScript **Web:** ReactJS, Vite, wagmi, Fastify, HTML, CSS
Blockchain: Ethereum, Hardhat, Foundry, EIP-712, EIP-2771, ERC-4626, ERC-6551, IPFS, zk-SNARKs, Circom
Databases & Tools: MySQL, Git, GitHub, Linux, Docker, Vercel

RELEVANT COURSEWORK

CS: Data Structures and Algorithms (Theory & Lab), Data Science (Theory & Lab), Discrete Mathematics
Math: Probability Theory and Random Processes, Number Theory, Linear Algebra, Real Analysis

POSITIONS OF RESPONSIBILITY

DeFi and Blockchain Head, Finance and Economics Club, IIT Guwahati

Apr 2026 – Present

- Leading a **25+ member** DeFi & Blockchain vertical: driving Web3 ecosystem partnerships, project pipelines, and conducting workshops on smart contract development and DeFi protocol design.