Prabin Baral

Bachelor's in Computer Engineering

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WORK EXPERIENCE

Venture23 - Software Engineer

April 2023 - current Remote

- Architected WASP Privacy, a multi-chain shielded pool across the multiple EVM chains, leveraging zero-knowledge proofs and a shared Merkle tree to enable private asset shielding, transfers, swaps, and money market access privately.
- Architected the Aleo GMP framework and implemented the Sodax-integrated smart contract, delivering robust cross-chain interoperability for digital asset transfers.
- Engineered a cross-chain indexer for the Verulink Aleo–ETH bridge, facilitating real-time packet tracking across EVM and Aleo chains and implementing precise, protocol-aligned fee calculation.
- Developed and maintained game engines for on-chain games across ICON, BASE, and SUI, delivering robust backend systems and seamless blockchain integration.

Venture23 - Blockchain Developer Intern

Nov 2022 - April 2023 Hybrid(Kathmandu)

- Developed and executed multiple test cases for Solidity smart contracts as part of the Wondergame project
- Worked on the back-end integration of a Tezos blockchain NFT marketplace, developing various scripts to synchronize on-chain data efficiently

Black Tech - Junior MERN Stack Developer

Nov 2021 - Dec 2022 Onsite(Pokhara)

- Contributed to the development of RestroX, a comprehensive restaurant management system handling staff coordination, table management, KOT (Kitchen Order Ticket) processing, and various other operational aspects
- Contributed to multiple e-commerce projects, working on both frontend and backend development

PROJECTS

Wisp Privacy

- Architected WISP, a multi-chain shielded pool deployed across the Sodax-connected chain ecosystem and Stellar, leveraging zero-knowledge proofs and a shared Merkle tree to enable secure, privacy-preserving asset shielding and transfers while concealing transaction amounts, assets, senders, and recipients.
- Developed core smart contracts, ZK circuits, provers, indexing components, and relayer infrastructure, enabling privacy-preserving DeFi integrations with SoraSwap, DeFindex, Blend, and the Sodax solver, alongside wallet compliance screening and private transaction submission.

Aleo GMP

- Architected the Aleo-GMP framework, designing a scalable and secure multichain architecture to enable seamless cross-chain communication and digital asset interoperability.
- Developed the core Aleo-GMP smart contract with Sodax integration, delivering robust multichain support and trustless digital asset exchange.

Verulink Bridge

- Developed a high-performance indexer for the Verulink Aleo–ETH bridge, enabling reliable cross-chain packet monitoring on both EVM and Aleo networks with accurate fee computation.
- Performed comprehensive testing of the Aleo smart contract for the Verulink bridge using DokoJS, ensuring reliability, correctness, and cross-chain compatibility.

Battle of Ruby valley

- Engineered full on-chain and off-chain game infrastructure on the SUI blockchain, including backend systems and automated scripts for real-time data synchronization and consistent gameplay integrity.
- Developed and integrated high-performance real-time communication features, including public and faction-based WebSocket chat systems, enhancing interactivity and user engagement within the game ecosystem

GangstaVerse

- Contributed to GangstaVerse's game engine by optimizing core mechanics, implementing an advanced map filtering system for Emerald City, and enhancing overall gameplay performance.
- Engineered a TOWER-token–powered character generation system, enabling dynamic, unique, and fully customizable in-game avatars.

TZCreator

- Built the backend workflow for attribute-based on-chain art generation on the Tezos blockchain and developed scripts to ensure real-time, reliable synchronization of on-chain data.
- Integrated a full-featured marketplace for showcasing and transacting generated art, improving user engagement and streamlining the overall experience.

RestroX

- Developed and managed the menu and inventory systems, ensuring seamless updates and integration for efficient restaurant operations
- Implemented and optimized the staff and checkout systems, enhancing transaction processing and staff management efficiency

NFT Gift Exchange - Personal Project

- Designed and developed a platform for gifting and exchanging NFTs, enabling users to seamlessly transfer digital assets in a secure and user-friendly environment
- Implemented smart contract functionality to facilitate NFT exchanges, ensuring transparency and trust in peer-to-peer transactions

Ajin Ecommerce - Personal Project

- Developed an e-commerce platform enabling purchases through a local payment gateway (Khalti) or AJIN Coin (ERC20), integrating on-chain transactions for secure and versatile payment options
- Implemented a reward system where users earn AJIN Coins for purchases, which can be redeemed in future transactions, fostering customer loyalty and engagement

EDUCATION

Pokhara University / Pokhara Engineering College - Bachelor in Computer Engineering

2017 - 2022 Pokhara-8, Nepal

Bhadrakali Higher Secondary School - Science

2015 - 2017 Pokhara-13, Nepal

SKILLS

Programming Languages: JavaScript, TypeScript, Rust, Solidity, Leo

Backend Development: Node.js, Express.js, REST APIs, WebSockets, Microservices

Blockchain Development: Aleo, EVM, Stellar, Soroban, Sui, Smart Contracts, Cross-chain Interoperability, Web3.js, ZK Proofs

Zero-Knowledge & Privacy: Noir, Groth16, UltraHonk, Merkle Trees, Provers, ZK Circuits

Database & Indexing: PostgreSQL, MongoDB, MySQL, Drizzle ORM, Sequelize, Blockchain Indexers

DevOps & Tools: Docker, Git, GitHub, GitLab, Linux, CI/CD

Research Interest

- Scalable Backend System Design and Architecture
- Distributed Systems and Microservices Architecture
- High-Performance Systems and Database Optimization
- Decentralized Finance (DeFi)
- Blockchain Scalability Solutions
- Cryptographic Algorithms and Protocols
- Consensus Mechanisms (PoW, PoS, etc.)
- Tokenomics and Digital Assets