SHATABARTO BHATTACHARYA

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EXPERIENCE

Smart Contract Developer, Timeswap Labs   December 2022 - Present

- Led **testing** and **auditing** efforts of core smart contracts at Timeswap Labs, ensuring their functionality and security.
- Conducted **comprehensive testing** using **Forge's fuzz and invariant testing methodologies**, successfully uncovering various bugs and critical vulnerabilities within the smart contracts like identifying a **critical reentrancy flaw that allowed the liquidity token to be burnt twice.**
- Analyzed fees and past transactions using a Python script, providing data-driven insights on fee structure effectiveness.
- **Demonstrated mathematical expertise** by proposing and implementing an innovative fee collection model, **optimizing efficiency and revenue generation**. **Integrated the fee model into the core smart contracts**, streamlining the fee collection process.

Risk Analyst, Llama Research, CurveDAO   May 2023 - Present

- Worked on **assessing the technological risks** for reports on frxETH, cbETH, and rETH at Llama Research, specifically for Prisma Finance.
- Prepared **detailed reports** outlining identified risks and recommended risk mitigation strategies.
- Conducted comprehensive analysis by reviewing **past audit reports**, investigating past transactions, and **performing code-based research**

Maintainer, Human Protocol (formerly hCaptcha)   October 2022 - Present

- **Maintained smart contracts** and facilitated the integration of Human Protocol with the Avalanche chain.
- **Deployed the Reputation Oracle and Escrow Contract** on both the mainnet and testnet of the Avalanche chain, ensuring their successful implementation and functionality.
- Assisted in **deploying the subgraph** for Human Protocol for Avalanche chain, enhancing visibility and data accessibility.
- **Updated the dashboard of the Human Protocol** website by integrating the subgraph, to incorporate Avalanche, providing users with seamless access to relevant information and functionality specific to the Avalanche chain.

Google Summer of Code Mentee, ListenBrainz, MetaBrainz   June 2022 - September 2022

- Worked as a **mentee at Google Summer of Code**, a **highly competitive program**, for the ListenBrainz project under MetaBrainz.
- Developed and took ownership of a feature that allowed users to share personalized music recommendations with their followers.
- **Created a scalable API** that supports 7-8k API calls per month, ensuring efficient and reliable performance for a large user base.
- Built a frontend interface using **TypeScript and React**, allowing users to seamlessly interact with the personalized music suggestion feature.
- Wrote end-to-end tests for the Python backend, utilizing Flask and pytest, and for frontend used Enzyme and Jest.

Open Source Contributions

- OpenZeppelin: Implemented and wrote tests for internal functions for use in upgradable smart contracts
- Snekmate: Created Fuzz tests for CreateAddress and Create2Address
- docarray: Created feature to support a variety of text formats and better support for multi-modal data.
- ListenBrainz: Wrote and saw through deployment of two features that I had taken ownership of - deleting and hiding events in feed.

Publications

- Autoencoder-based dense denoiser and block-based wiener filter for noise reduction of optical coherence tomography
  Published in "Computers and Electrical Engineering - Elsevier" journal, which has an **impact factor of 4.152**, ranking it **15 out of 54** in Computer Science, Hardware & Architecture
- Time Bound Token (TBT): Generalized Time Based Claim on utility
  Time Bound Token (TBT) is a system for asset ownership within specific timeframes, representing options for time-bound assets..

Skills

- Blockchain: Solidity, Hardhat, Ganache, Truffle, Ethers.js, Web3.js, Forge, Echidna, Slither
- WebDev: Flask, Express, React, Next.js
- Databases/ORM: Sqlalchemy, Mongoose, TypeORM, MongoDB, PostgreSQL, Sqlite3
- Devops: Github CI/CD, Docker, Docker Compose, Sentry
- Testing: PyTest, Chai, Enzyme, Jest

Education

- Bachelors of Engineering in Information Technology, Panjab University, Chandigarh
- Kendriya Vidyalaya, Noida (89% in Central Board Examination for 12th Grade)