

# Tezan Sahu

THIRD YEAR UNDERGRADUATE

IIT Bombay, India

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## Education

### IIT Bombay

B.TECH. IN MECHANICAL ENGINEERING

MINOR IN COMPUTER SCIENCE AND ENGINEERING

August 2017 - Graduation 2021

CPI: 9.87

### Jaipuria School

INTERMEDIATE/+2

2017

96.2%

### St. Mary's ICSE School

MATRICULATION (ALL INDIA RANK - 1)

2015

99.2%

## Work Experience

### Google Summer of Code 2020 Student [Work Report]

Remote

#### PEcAn PROJECT

Jun-Aug 2020

- Conceptualized & developed **rpecanapi**, an R package to leverage PECO's services without the overheads of connecting to the database
- Revamped & dockerized the **PEcAn RESTful API** to consist of all the endpoints which allow users to interact remotely with PECO servers

### Data & Applied Science Intern

Remote

#### MICROSOFT

May-Jul 2020

- As a part of the Core Relevance team at Bing, developed a framework to automate the analysis of ranking techniques based on DCG Metrics
- Increased the query reproducibility by 10 % and aided in slashing the time taken to debug ranking techniques from a week to only a few hours
- Selected to present the project at Microsoft's Machine Learning & Data Science (MLADS) Synapse 2020 Conference (41% acceptance rate)

### Smart Contract & DevOps Intern

Remote

#### WALLETSOCKET INC.

Dec 2019

- Successfully completed the development testing of smart contracts for Pay0K, a crypto payment processor that integrates a variety of merchants
- Configured Istio proxies to build a service mesh for the microservices deployed on Kubernetes to communicate by abstracting the network

### Blockchain Engineering Intern

Bengaluru

#### WANDX SOLUTIONS PVT. LTD.

May-Jul 2019

- Developed a solution for WandX Desktop Application by aggregating multiple cryptocurrency exchanges to display best trades to the user
- Engineered smart contracts for implementing confidential transactions of fiat-backed stable coins using AZTEC protocol for WalletSocket Inc.
- Developed a new Security Token standard around ERC721 tokens using IPFS for storing proofs, along with proof verification strategies

### Backend Developer

Mumbai

#### ENCORO SOLUTIONS PVT. LTD.

Jan-Mar 2019

- Aided in formalizing and implementing the mathematical model to figure out the key nodes as part of Social Network Analysis
- Analysed and evaluated the model to suggest the incorporation of various new parameters to improve the model

### Blockchain Research Intern

Bengaluru

#### DUNYA LABS (INDIA) PVT. LTD.

Dec. 2018

- Analyzed block data worth several days to formulate and test metrics for the middleware being developed on the EOS Blockchain
- Explored the working and applications of Zero-Knowledge Proof Systems such as SNARKs, STARKs and Bulletproofs on various blockchains
- Brainstormed about middlewares and services that could be built on top of upcoming blockchains such as Dfinity and Polkadot

## Projects

### HumanChain: Volunteering & Donation Platform during COVID-19 [Demo] [Code]

Hackathon Project

#### COVID-19 GLOBAL HACKATHON 1.0, DEVPOST

Mar-Apr 2020

- Designed a platform using web technologies, NodeJS & Firebase to allow home-bound patients to request for assistance, match volunteers who wish to help the needy & also stay updated with the latest news & statistics about COVID-19
- Integrated a portal to enumerate fundraising activities & allow people to donate in cash (including cryptocurrency like ETH) or kind for relief

### zkCompound: Privacy-Preserving Compound Lending on Ethereum [Code]

Hackathon Project

#### HACK IN/OUT 6.0, BENGALURU

Oct 2019

- Developed a novel solution using zero-knowledge to achieve complete verifiable privacy while performing compound lending & borrowing
- Revamped the Compound Finance Protocol smart contracts to integrate the zero-knowledge proofs verification offered by AZTEC Protocol
- Designed an aesthetically pleasing front-end for the application to make end-user experience as intuitive & seamless as possible

## Berkeley Clock Synchronization Algorithm [Code]

CSE, IIT Bombay

PRINCIPLES OF CONCURRENT AND PARALLEL PROGRAMMING COURSE PROJECT UNDER PROF. R.K. SHYAMASUNDAR

Sept - Oct 2019

- Implemented the Clock Synchronization algorithm used in Berkeley UNIX [based on this work] to solve the problems in distributed systems
- Used UDP sockets in python to communicate between the master node & slave nodes to provide a fault-tolerant time difference averaging

## TEXTURify: Cross-Platform Application for Image Quilting [Code]

CSE, IIT Bombay

DIGITAL IMAGE PROCESSING COURSE PROJECT UNDER PROF. AJIT RAJWADE

Sept - Oct 2019

- Implemented the Image Quilting techniques for Image Texture Synthesis & Transfer [based on this work] & obtained convincing results
- Fabricated a cross-platform application around the implementation using Ionic & FastAPI to transfer desired textures onto target images

## Excalibur: Ethereum-Based Voting Solution [Demo] [Presentation]

Hackathon Project

MICROSOFT CODEFUNDO++, IIT BOMBAY

Aug 2019

- Developed an end-to-end Decentralized Voting Solution to organize secure, reliable, and transparent elections using Azure Blockchain
- Applied the concepts of cryptography to ensure anonymity of voters on a public blockchain during the election, yet making the votes verifiable
- Designed the front-end for the Decentralized Application using Angular and developed the service to encrypt and decrypt votes using Python

## LendZ: Zero Knowledge Loans on Ethereum [Code]

Hackathon Project

ETHINDIA HACKATHON 2.0, BENGALURU

Aug 2019

- Innovated on Lendroid by implementing protocol-level changes to incorporate the Zero Knowledge toolkit of AZTEC into their smart contracts
- Designed an end-to-end DApp to allow users to lend in Zero Knowledge on Ethereum using Node.JS for the server & Angular for the front-end

## Pay-No-Load: A Plugin for the Aleth.io Ethereum Lite-Explorer [Code]

Hackathon Project

BEYOND BLOCKCHAIN HACKATHON, GITCOIN

Jul 2019

- Created a plugin for the Aleth.io Lite Explorer to primarily decode Ethereum transaction payloads using the corresponding contract ABIs
- Incorporated additional functionalities to display metadata about token contracts and all token balances of a given Ethereum account

## Waffle-CLI: An Explorer for Ethereum [Code]

Hackathon Project

BEYOND BLOCKCHAIN HACKATHON, GITCOIN

Jul 2019

- Created a CLI tool, similar to an Ethereum block explorer, curated for developers to monitor smart contracts, transactions and events
- Enabled custom filtering of transactions and events based on function signatures and local timestamps, along with ENS Domain resolution

## Attendance System using Face Recognition [Code] [Video]

Technical Council, IIT Bombay

INSTITUTE TECHNICAL SUMMER PROJECT

May - Jul 2018

- Lead a team of 4 members to construct an Attendance Recording Bot that could mark the attendance of students using face recognition
- Developed 2 Android apps, one for the students to check their attendance and another for controlling the bot using bluetooth
- Implemented the "face\_recognition" model after tuning the parameters on the faces of 200 students and attained an accuracy of around 95%

## Achievements

Present	<b>Department Rank 1</b> , Mechanical Engineering Department, IIT Bombay	IIT Bombay
Present	<b>Institute Rank 2</b> , Indian Institute of Technology Bombay	IIT Bombay
Aug 2020	<b>Institute Technical Color</b> , Institute Student Technical Awards 2019-20	IIT Bombay
Feb 2020	<b>Winner</b> , I_Hack Blockchain Track, E-Summit 2020	IIT Bombay
Aug 2019	<b>1st Place</b> , Microsoft CodeFunDo++ Institute-Wide Hackathon	IIT Bombay
Aug 2019	<b>Winner</b> , ETHIndia Hackathon 2.0 [Also won API Prizes of AZTEC Protocol, Lendroid & Matic Network]	Bengaluru
Jul 2019	<b>1st Place</b> , Aleth.io Lite Explorer Freestyle Track, Gitcoin Beyond Blockchain Hackathon	Online
Jul 2019	<b>2nd Place</b> , Aleth.io API Freestyle Track, Gitcoin Beyond Blockchain Hackathon	Online
2018-19	<b>Special Mention</b> , Hostel 3 Technical Awards	IIT Bombay
Aug 2018	<b>Top Hack Prize</b> , Lendroid track, ETHIndia Hackathon	Bengaluru
2017	<b>All India Rank 514</b> , JEE Advanced Examination, among 0.22 million aspirants	India
2015	<b>All India Rank 1</b> , ICSE Board Examination, among 0.16 million students	India

## Positions of Responsibility

### Institute System Administrator

IIT Bombay

HOSTEL AFFAIRS COUNCIL

June 2020 - Present

- Leading a 12-member SysAd team as the interface between IIT Bombay Computer Center and students across the institute
- Responsible for maintenance and upkeep of servers in the student data center, ensuring their smooth functioning & minimal downtime

### Overall Coordinator, Developers' Community

IIT Bombay

INSTITUTE TECHNICAL COUNCIL

June 2020 - Present

- Spearheading the community of software developers at IIT Bombay with a 3-tier student technical team to accomplish several projects
- Mentored a group of freshers for writing maintainable production quality code and performing deployments

## Convener

THE WEB AND CODING CLUB, INSTITUTE TECHNICAL COUNCIL [\[WEBSITE\]](#)

IIT Bombay

Apr 2018 - Mar 2019

- Part of a team of 22 students, catering to 5000+ coding enthusiasts and students on campus through talks, workshops, hackathons, etc.
- Organized and spoke at sessions on Web Scraping, Game development, Version Control, Open Source and Blockchain Essentials
- Contributed towards developing and maintaining the website for Inter IIT Tech Meet 2018, held at IIT Bombay

## Web and Marketing Coordinator

THE ENTREPRENEURSHIP CELL [\[WEBSITE\]](#)

IIT Bombay

Mar 2018 - Feb 2019

- Led the organizing team for I\_Hack Hackathon, E-Summit 2019, reaching out to 50+ companies and 500+ hackers
- Single-handedly developed the website for the DLT Innovation Challenge, a pan-India level hackathon based on Distributed Ledger Technology
- Contacted 200+ companies to explore new synergies for Eureka! 2018 and E-summit 2019, ensuring completion of all promised deliverables
- Mentored 20 freshmen in case study solving, BMC filling and pitch deck making during EnB Buzz at IIT Bombay

## Relevant Courses

Computer Science	Computer Programming and Utilization, Data Structures and Algorithms, An Introduction to Number Theory and Cryptography, Introduction to Machine Learning, Introduction to Computer Networking, Principles of Concurrent and Parallel Programming, Logic in Computer Science, Digital Image Processing
	Others
	Calculus, Linear Algebra, Differential Equations, Introduction to Numerical Analysis, Economics, Quantum Mechanics

## Technical Proficiency

Programming	Python, C/C++, HTML5, CSS3, Javascript, MATLAB, Solidity
Development	PyTorch, Graphlab Create, Django, Docker, Kubernetes, Angular, Ionic, Node.JS, SQL, Jekyll
Software/Tools	Git, JIRA, Octave, Truffle, Embark, EOSIO, $\LaTeX$ , AWS, Azure, CouchBase, Photoshop, Premiere Pro, Arduino, AutoCAD, SolidWorks, AdvantEdge

## Certifications

Jul 2020	DevOps Culture & Mindset <a href="#">[View]</a>	University of California, Davis   Coursera
Apr 2020	Reinforcement Learning Explained <a href="#">[View]</a>	Microsoft   edX
Apr 2020	Natural Language Processing <a href="#">[View]</a>	Microsoft   edX
Jul 2018	Blockchain Fundamentals Training <a href="#">[View]</a>	Blockchain Semantics
May 2018	Machine Learning Specialization <a href="#">[View]</a>	University of Washington   Coursera
Apr 2018	Certified Marketing Analytics Practitioner	Henry Harvin Education

## Extracurricular Activity

Cultural Activities	<ul style="list-style-type: none"><li>• Conducted 3 solo painting exhibitions featuring 101, 135 and 68 paintings</li><li>• Excelled in Elementary and Intermediate Drawing Grade Examinations with an A Grade</li><li>• Secured International Best Prize at UNICEF's Japan International Painting Competition 2014</li><li>• Completed 3<sup>rd</sup> Year in Hindustani Classical Vocals</li></ul>
Sports	<ul style="list-style-type: none"><li>• Successfully completed one year of Squash under National Sports Organization (NSO)</li><li>• Represented the school in Inter-District Hockey and Table Tennis tournaments</li></ul>
Miscellaneous	<ul style="list-style-type: none"><li>• Won the Vodafone's Faster Smarter Better Challenge 2012 and 2014 in Navi Mumbai</li><li>• Finalist of the personality contest at Cascade 2014, one of the biggest inter-school fests in Mumbai</li><li>• Designed a manually controlled car for XLR8 Competition, capable of negotiating obstacles on a designated track</li><li>• Mentored 5 students for Summer of Science 2019 in areas like cryptography, machine learning &amp; blockchain</li></ul>