

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: 9.88

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 PEcAn'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 PEcAn 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

Lookup or Exploratory: What is Your Search Intent? [View]

Research Project

UNDER THE GUIDANCE OF DR. MANOJ AGARWAL (MICROSOFT)

Jun 2020 - Present

- Developed a transformer-based model to classify the intent specificity of search queries using an augmented triplet loss function
- Achieved an **accuracy of 80.25%** & an **F1 Score of 0.8321** on queries from actual Bing logs without any session-related information
- Proposed a **Semi-Greedy Iterative Training** algorithm to improve the model accuracy to **87%** using pseudo-ground truths
- Selected to present the project as a Short Paper at Microsoft's Machine Learning & Data Science (MLADS) Synapse 2020 Conference

McDefect Solutions: AI-Powered Manufacturing Quality Inspection [Demo] [View]

ME, IIT Bombay

ENGINEERING DATA MINING & APPLICATIONS COURSE PROJECT UNDER PROF. ASIM TEWARI

Oct - Dec 2020

- Created customizable AI-powered defect detection & classification solutions for manufacturing industries, to improve the production efficiency
- Trained a RetinaNet-based Object Detection Model & VGG-based models for defect detection using transfer learning to achieve **98% accuracy**
- Developed the website, demo portal & RESTful API server for deployment, along with enabling auto-documentation for the project

HumanChain: Volunteering & Donation Platform during COVID-19 [\[Demo\]](#) [\[View\]](#)

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 [\[View\]](#)

Hackathon Project

HACK INOUT 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 [\[View\]](#)

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 [\[View\]](#)

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 [\[View\]](#)

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 [\[View\]](#)

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

- Spearheaded 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 ~ 95%

Achievements

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

Positions of Responsibility

Institute System Administrator

IIT Bombay

HOSTEL AFFAIRS COUNCIL

Jun 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

Jun 2020 - Present

- Spearheading the community of software developers at IIT Bombay with a 3-tier student technical team to accomplish several projects
- Brainstormed, guided & contributed towards developing the Resume Verification Portal & DevCom Gaming Portal
- Mentored a group of freshers for writing maintainable production quality code and performing deployments

Convener

IIT Bombay

THE WEB AND CODING CLUB, INSTITUTE TECHNICAL COUNCIL

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

IIT Bombay

THE ENTREPRENEURSHIP CELL

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

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 [View]	University of California, Davis Coursera
Apr 2020	Reinforcement Learning Explained [View]	Microsoft edX
Apr 2020	Natural Language Processing [View]	Microsoft edX
Jul 2018	Blockchain Fundamentals Training [View]	Blockchain Semantics
May 2018	Machine Learning Specialization [View]	University of Washington Coursera
Apr 2018	Certified Marketing Analytics Practitioner	Henry Harvin Education

Extracurricular Activity

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