

Arnab Mukherjee

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PROFESSIONAL EXPERIENCE

Research Intern

May 2020 – present

Indian Institute of Technology Patna

Patna, India

- Researched the applications of blockchain technology in various industry sectors.
- Tested the application of machine learning to detect vulnerabilities in smart contracts.
- Implemented a federated learning architecture for Deep Q Learning agents.
- Designed and developed three smart city platforms based on Hyperledger Fabric and Ethereum.
- Implemented REST APIs using Express and Node.js.
- Drafted frontends for the projects using React JS.

Full-Stack Web Developer Intern

Jan 2020 – Apr 2020

Insolva Solutions Inc.


Kolkata, India

- Designed and Developed a company website for an NGO using the LAMP stack.
- Implemented a blogging website, similar to WordPress for a client using the MERN stack.

PROJECTS

Template Portfolio Website for Researchers

github.com/mukherjeeearnab/researcher-portfolio

- Designed and implemented a template portfolio website on React JS, for Researchers or University Professors.
- Demo available at <https://mukherjeeearnab.github.io/researcher-portfolio> 

Distributed Deep Q Learning

github.com/mukherjeeearnab/distributed-deep-qnet

- Implemented a distributed architecture for Deep Q Learning, based on Google's DownpourSGD.
- Implemented the project on Python, using PyTorch, Flask, OpenAI Gym, based on a client-server model.

GoTPE

github.com/mukherjeeearnab/gotpe

- Implemented a Go package for Threshold Predicate Encryption (TPE).
- TPE is a variant of functional encryption, based on the works of Khai Zhou et. al. in IEEE TIFS Vol.: 13.

Vulnerability Detection of Solidity Smart Contracts

github.com/mukherjeeearnab/soli-swc

- Implemented a Deep Learning model to detect vulnerabilities in Solidity smart contracts.
- The LSTM model, implemented on Tensorflow, achieved an F-1 score of 97.85% during the tests.

PUBLICATIONS

Blockchain-Enabled Emergency Detection and Response in Mobile Healthcare System

May 2022

IEEE International Conference on Blockchain and Cryptocurrency (ICBC '22), IEEE Press. (Accepted)

A Unified Blockchain-based Platform for Global e-waste Management

2021

International Journal of Web Information Systems (IJWIS), Volume 17(5): 449-479. Emerald Publishing.

An Integrated Platform for Vehicle-Related Services and Records Management using Blockchain Technology

Apr 2021

13th Asian Conference on Intelligent Information and Database Systems (ACIIDS '21), Springer CCIS 1371.

PoliceChain: Blockchain-Based Smart Policing System for Smart Cities

Nov 2020

13th International Conference on Security of Information and Networks (SIN '20), ACM Press.

EDUCATION

Bachelor of Technology - Computer Science & Engineering (GPA 8.8/10)

Jul 2018 – Jun 2022

Maulana Abul Kalam Azad University of Technology

Kolkata, West Bengal

SKILLS

- | | | | |
|----------------|--------------|-----------|--------------|
| • HTML5 / CSS3 | • JavaScript | • Node.JS | • React JS |
| • Python | • Solidity | • MongoDB | • PostgreSQL |