

MANAN MONGA

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SKILLS

Proficient	Python, Ruby, Rails, React-Native, SQL, JavaScript, Git, Ray, Test Driven Development, PyTest
Exposure	Solidity, C++, Linux, Django, Flask, Bash, AWS, PowerShell

WORK EXPERIENCE AND PROJECTS

Boston University Hariri Institute For Computing

Boston, MA

Graduate Research Assistant

Apr. 2020 - Present

- Hariri Institute is a convergence accelerator that initiates **data-driven research** for a better society.
- Built cross-platform prototype application using **React-Native** for privacy-sensitive **electronic contact tracing** for COVID-19
- Researched feasible sensor technologies for detecting exposures, implemented Bluetooth Low Energy chirps to detect for mobile application to detect exposures within COVID transmission range
- Investigated popular exposure notification frameworks with MA state authorities to ensure that contact-tracing framework they bought into was secure

Bare-Metal Marketplace

Boston, MA

Cloud Engineering Project

Jan. 2020- May 2020

- Designed an open marketplace system in an AGILE team as a series of **micro-services** for the MOC to buy and sell time on bare-metal nodes.
- Architected and deployed **robust matching algorithm in Python** for the double-blind auction system
- Ensured quality code with **functional testing using PyTest** for all edge cases of bids and offers to ensure fair trading at **scale**.
- Integrated backend with a SQL Database and CLI frontend with Flask to ensure end-to-end deployability

Python SQL operator library with Provenance and Explain-ability

- Engineered an operator library in Python to work with data pipelines to perform ETL operations at scale, keep track of **data provenance**
- Deployed library in **Ray** and turned all classes into efficient, distributed actors, improved recommendation engine performance by **70%**
- Incorporated explain-ability features with **LIME** and **SHAP** and performance metrics for each operation in pipeline with metric dashboard **Jaeger**

PolkaDot-IPFS

- Conceptualized and prototyped a bridge between Polkadot (a blockchain network) and IPFS (a decentralized and distributed data system) to simplify ownership signatures of files uploaded to the cloud
- Validated **user authentication and signing** with cryptanalysis of hashing and Message Authentication Codes

EDUCATION

Boston University

Boston, MA

MS in Computer Science with a Specialization in Cybersecurity

Sep. 2019 - Jan. 2021

Courses: Data Systems with **Python**, Object Oriented Software Engineering with **Java**, Applied **Cryptography**, Cryptography, Cryptography 2, **Cybersecurity**, Advanced **Algorithms**, **Cloud Computing**

PES University

Bengaluru, IN

BE in Electronics and Communications

Aug. 2015 - May. 2019

Courses: : **Network Security**, **Database Security**, C, Python, **Semiconductor Systems**, Microwave Systems

PUBLICATIONS

Software Defined Networks as a backbone for Large Scale IoT Networks

- Published a white paper on the benefits of using a Software-Defined Networking (SDN) with virtualized network functions as a backbone for large-scale IoT at **international security conference AISD 2019**
- Developed an architecture incorporating the security benefits offered in integrating the software defined paradigm into **large-scale IoT networks** focused on security.