

# AADITYA M NAIR

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amnair.dev

## EDUCATION

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### IIIT-Hyderabad

2013 – 2019

B.Tech + MS (By Research) in Computer Science

Thesis on **Erasure Coding for Distributed Storage**

Member of *Student Placement Committee*

*Dean's Merit List* awarded for the year 2016–2017

## EXPERIENCE

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### Tower Research Capital

Jan 2021 - Present

*Software Engineer - II (Information Security)*

*Gurugram, IN*

- Performed security reviews for new initiatives like onboarding crypto exchanges and Slack EKM.
- Built secure workflows for cryptocurrency trading applications.
- Onboarded **Hashicorp Vault** as a secrets management platform.
- Setup **AWS Workspaces** as an alternate remote access tool.
- Maintaining Tower's internal **authN/authZ** tool: Cypher

### Tower Research Capital

June 2019 - Dec 2020

*Software Engineer - I (Information Security)*

*Gurugram, IN*

- Improved network restrictions on outbound and VPN traffic.
- Introduced HIBP for account breach monitoring on 3rd party sites.
- Improved visibility into service account usage within the **Linux** infrastructure.
- Built **logstash** based data ingestion pipelines for Tower's in-house SIEM: Cerebro
- Partnered with Enterprise teams to onboard and setup **VMWare Workspace One** MDM tool.

### Facebook Inc.

June 2017 – Sept 2017

*Production Engineering Intern*

*London, UK*

- Worked on improving hypershell, a push based massively parallel command execution tool.
- Migrated hypershell to a HDFS based storage backend as well as create a common storage API.
- Improved performance of read/aggregate operations by **more than 90%**.

### IIIT-Hyderabad

Sept 2016 – May 2019

*System Administrator (part-time)*

*Hyderabad, IN*

- Managed multiple services including the **internet proxy**, **LDAP**, **DNS** and **VMs**.
- These products served **~3000 people** at any time.
- Involved in **mentoring the next generation** of student sysadmins.

### IIIT-Hyderabad

May 2015 – May 2019

*Research Assistant: SPCRC (part-time)*

*Hyderabad, IN*

- Working with Dr. Lalitha Vadlamani on the **Locally Recoverable Erasure Codes**.
- Awarded **Runner-Up Best Paper** for one of the research publications
- Also tasked with managing the the various machines that make our lab's **cluster**.

## PROJECTS

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### Hashicorp Vault

*Secrets Management Tool*

- Took charge of configuring and deploying Vault within our infrastructure.
- Onboarded **60 % of the engineering teams** to use vault within their workflows/code.
- Migrated Tower's entire **PKI** infrastructure to use Vault.

### VMWare Workspace One

*MDM Tool for all of employees' laptops*

- Led the onboarding, configuration and deployment of macBooks and iPhones within Tower.
- Acted as an SME for all things Apple within Tower.

### Cypher

*Internal Authentication and Permissions Management*

- Cypher is an internal *OAuth like* tool for authentication into Tower's different services and manage permissions to them.
- Currently trying to make the service properly OAuth2 compliant as well as migrating permission management to an IAM tool.

### AWS Workspaces

*Alternate Remote Access tool for Employees*

- Setup the basic infrastructure (like subnets, VPNs, etc) on an entirely new AWS account.
- Used **SaltStack** to instantiate and manage the workspace VM.

### Cerebro

*Custom SIEM tool*

- Maintained the ingestion pipelines as well as the various log parsing code.
- Worked on developing correlation features for the SIEM.
- Introduced a **Redis** cache to speed up log processing.

## RESEARCH PUBLICATIONS

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### Maximally Recoverable Codes with Hierarchical Locality

*Aaditya M Nair, V. Lalitha*

- Published in NCC 2019. Awarded **Runner-Up Best Paper**

### A Field Size Bound and Constructions of Maximally Recoverable Codes with Hierarchical Locality

*D. Shivakrishna, Aaditya M. Nair, V. Lalitha*

- Extends the above paper and adds some bounds to the construction
- Paper was published in ISIT 2021

### Maximally Recoverable Codes with Hierarchical Locality: Constructions and Field-Size Bounds

*D. Shivakrishna, Aaditya M. Nair, V. Lalitha*

- Expected to be published in IEEE TIT Journal.