

VARAD BELWALKAR

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Education

D Y Patil college of engineering and technology, Kolhapur

2020-ongoing

Bachelor of Technology - Computer Science and Engineering

CGPA: 8.46

S.M. Lohiya Highschool | New College, Kolhapur

2018 | 2020

10th | Grade: 96.2% | HSC, 12th Grade: 83.3%

Experience

- Deployed and maintaining the college server to ensure seamless access and availability of resources for students and faculties.
- Published PaaS Framework as Docker image which has over **2.8K+** pulls on Docker Hub.

Projects

Compute Services | *Distributed Systems*

- Engineered backend in **Go** to provide storage and container services by utilizing docker-SDK for Go.
- Used **MongoDB** for storage, **Redis** for faster workflow, Computing platform, and Cookie-based sessions.
- Implemented Client in Go with conventional security practices and hybrid encryption.
- Implemented CI/CD pipeline using **Jenkins** to automate the build, test, and deployment process .

Load Balancing standalone docker engines | *Hobby Research Project*

2023-ongoing

- Developing a custom **load-balancer** in **Go** to facilitate the load balancing on multiple nodes.
- Service is in development and implementation following the Raft consensus algorithm.

Decentralized Document Verification | *Blockchain Technology*

- Developed a blockchain-based certificate verification system to enhance the security and authenticity of academic credentials issued by educational institutions.
- Implemented a Merkle tree based for enhanced security and efficiency in verifying academic credentials

Ethereum-Facilitated Secure Tunnelling | *Blockchain Technology*

- Leveraging Smart Contracts on the PoA test network sepolia for End-to-End highly concurrent Webhook interface between client and server behind NAT, with RESTful client implemented in Django.
- Only Contract owners will be able to communicate through the tunnel.

Docker-DHCP on host bridge | *Networking*

- Built a network driver for networking on a host bridge with DHCP-allocated IP addresses in Go.

Scalable Platform as a Service | *System Design*

- Built an **auto-scaling** container-based PaaS framework by implementing NGINX reverse-proxy to load-balance services controlled by replicated **Django-server** through Docker-Swarm.
- Provided a deployment platform, auto-configuring clients for Linux and Windows systems and TLS verification and encryption from the client side.

Web-based Labs | *Web application*

- Developed a User-friendly Web app with **ReactJS** providing services offered by the Compute service framework .
- Implemented a built-in terminal and various conventional practices and security features.

D-RAM Addressing Attack | *Computer architecture*

- Performed a timing attack on intel core i5 to reverse engineer the confidential address mappings .
- Established a **Covert-Channel** to perform illicit inter-process communication between the host and isolated VM.

Technical Skills

Languages: C/C++, Go, Python, JavaScript, PHP, Bash, Powershell, SQL, L^AT_EX

Software Tools: Git, GitHub, Docker, Jenkins, Wireshark, Kubernetes, Ansible, Localstack, Terraform(Localstack)

Databases: MySQL, MongoDB, SQLite, Redis

Web Dev: HTML5, CSS3, JavaScript, Node.js, ReactJS, ExpressJS, Django

Platforms: Linux, FreeBSD, MacOS, and Windows

Routing and Switching: GNS3 and EVE-NG

Firewalls: Palo-Alto, Fortigate

Position and Responsibility

- Carried out Linux-Wargames and took Linux-related sessions.