Supratik **Das**

SOFTWARE DEVELOPER | OPEN SOURCE ENTHUSIAST

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Education

Indian Institute of Technology, Roorkee   *Roorkee, India*

BTECH IN ELECTRONICS AND COMMUNICATION ENGINEERING   *July. 2017 - PRESENT*

- Expected May 2021

Experience

Google Summer of Code with Continuous Delivery Foundation (in Screwdriver.cd)   *Remote*

STUDENT DEVELOPER   *June 2020 - Aug 2020*

- Incorporated the automatic generation and use of **deploy keys** in the pipeline building flow.
- Added support for handling webhooks from external repositories and selectively choosing pipeline jobs.
- The features have been officially released and deployed into production.

American Express   *Gurgaon, India*

SOFTWARE DEVELOPER INTERN   *May 2020 - July 2020*

- Worked on developing service classes for microservices, APIs and datastore interfaces using Spring Boot.
- **Proposed** a new testing framework **Groovy** as a replacement for JUnit to separable teams and assured its successful adoption.
- Developed a code-crawler application as a part of internal hackathon with performance enhancements using **multithreading** and effective use of **LRU caches**. **Volunteered** for **leading** the team.

Bolo   *Bangalore, India*

SOFTWARE DEVELOPER INTERN   *May 2019 - July 2019*

- Developed a cloud recording microservice for a peer-to-peer WebRTC session.
- Developed a chat infrastructure service which uses Socket.IO and FCM. Used NodeJS's Cluster library for concurrent socket management.

Achievements

2020	**1st Place**, CipherText CTF by Nullcon	*All India*
2020	**1st Place**, HAB59 Hackathon 2020 - Lead and mentored the team	*All India*
2019	**Gold Medalist**, Inter IIT Tech Meet 8.0 - Coding Hackathon	*All India*
2019	**1st Place**, UST Global D3code Hackathon	*All India*
2019	**3rd Place**, Cisco SecCon APJC CTF	*All India*
2019	**4th Place**, BrainWaves CTF	*All India*
2019	**Finalist**, Smart India Hackathon	*All India*
2018	**Winner**, Hasura sponsored prize at Syntax Error Hackathon	*IIT Roorkee*
2018	**Finalist**, InOut Hackathon 5.0	*All India*

Skills

Computer Languages	Golang, Javascript/Typescript, Python, Rust, Java, C, C++, PHP, SQL, Bash, HTML/CSS
Software Packages	Docker, Kubernetes, gRPC, Terraform, AWS Firecracker, Hashicorp Nomad, Screwdriver.cd, Gin, React, VueJS, Node.js, Django, Flask, GDB, IDA Pro, Burp Suite
Developer Tools	Git, Vim, Emacs, Tmux, Postman

Projects

Gasper - Intra Campus Deployment Services   *IIT Roorkee*

SDSLABS   *Oct 2018 - PRESENT*

- Gasper is a PaaS tool written in Golang used for deploying and managing applications and databases in any cloud topology.
- It is engineered on **microservices architecture** and uses **Docker** for the containerization of the applications and databases. **gRPC** protocol is used as the internal communication between services.
- Lead the development team into **release of v1**. Also oversaw the beta testing with the deployment of around **60 apps** in **2.5 hours**.
- Developed the core deployment pipeline for databases and apps.
- Developed a metrics exporter and collector with a web based visualizer. Also developed an internal reverse-proxy server.
- **Project can be viewed at https://github.com/sdslabs/gasper.**

Katana - Cloud Based Attack Defence CTF Platform

IIT Roorkee

SDSLABS

Oct 2019 - PRESENT

- Katana is an **attack defence CTF platform** with a cloud based deployment infrastructure inspired by container orchestration tools and DEF-CON CTF patterns. Designed the complete architecture.
- Developed the standard CLI interface for deploying the services.
- Developed the microVM cluster deployer with managed networking and challenge applications deployment pipelines. Currently able to deploy and manage at least **150 team microVMs** simultaneously on a **48GB system**.

Portkey - QUIC+WebRTC based file transfer tool

IIT Roorkee

SDSLABS

May 2020 - July 2020

- Worked on developing a P2P file transfer tool with **webRTC over QUIC protocol**.
- Implemented file chunking and multi-stream transmission.
- Benchmarked it with existing tools like **Webwormhole** and achieved nearly **2 times** the transfer speed.

Accounts - Oauth2 Authentication System

IIT Roorkee

SDSLABS

Jan 2019 - Aug 2019

- Accounts is an in-house multi-provider OAuth-2 based authentication framework.
- Worked on improving the OAuth flow and security auditing and developed a Golang based Oauth-2 Client for use as middlewares.

Wifi Device Probing Tool

IIT Roorkee

COMPUTER NETWORKS SEMESTER PROJECT

Sep 2019 - Dec 2019

- Developed a tool written in python to monitor devices in the vicinity of the operating device by capturing wifi signals.
- Uses **tshark** under the hood to capture **Wifi probe requests**, eliminating same network restrictions.
- Also generates a proximity history graph with device info and mac address based on the strength of the wifi signals.

Muzi - Music Streaming Web Application

IIT Roorkee

SDSLABS

Mar 2018 - July 2018

- Muzi is a music streaming application deployed internally in the campus. The UI client is written in **ReactJS** and the backend in **Laravel**.
- Enhanced the application with features like **Elasticsearch** and song downloader and indexer service with a **Redis** based task queue.

Jotunheim - Bittorrent based docker registry

PERSONAL PROJECT

September 2020 - PRESENT

- Developed an PoC docker image registry to support the Bittorent protocol for fast image pulls and container deploys.

Leadership

SDSLabs

IIT Roorkee

JOINT SECRETARY

Jan 2018 - PRESENT

- Regularly conducted hackathons, public lectures, and competitions to foster the technical culture on the campus and mentored freshmen and sophomore students.
- Responsible for maintaining current applications and server management.

InfosecIITR

IIT Roorkee

SENIOR MEMBER AND TEAM LEADER

Jan 2018 - PRESENT

- Active member and CTF player of InfoSecIITR team, with a focus in web security.
- Created challenges for cybersecurity competitions aimed at freshmen.
- Involved in organizing meetings and workshops related to information security.

Open Source Activity

Keptn - Kubernetes based Continous Integration/Continuous Operations

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- Worked on developing pre-operation checks in the CLI using PING and remedial solutions.
- Added mTLS in the CLI and implemented proper credential management for multiple plans like AWS, gCloud or local Kubernetes.

Cloud Native Buildpacks

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- Developed the buildpacks registry on the lines of rust-crate registry and implemented various publishing schemes in the CLI.

OWASP Juice Shop

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- Developed security challenges to be embedded embedded in the web-app. One of my challenges was ranked the highest rated.