Abhishek Shree

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Education

Year	Degree	Institution	Score
2020 - Present	B.S., Economics	Indian Institute of Technology Kanpur	8.8/10.0
2020	CBSE – XII	Loyola High School, Patna	95.2%
2018	CBSE – X	Loyola High School, Patna	98.0%

Work Experience

Product Engineer Intern, Infrastructure

Paradime.io   *August 2022 - December 2022*

- Built Kubernetes Vulnerability Scanner for **automated weekly vulnerability assessments** using tools including Trivy, Kubeaudit, and Kube_bench, deployed to airflow. Developed a way to securely connect to the production clusters.
- Implemented a **web-based Kubernetes user interface** with multiple-level role access, attached a Tailscale **sidecar** for the interface to be accessible just via internal VPN using Terraform
- Implemented **alarms** for failed Kubernetes nodes (failing status check) in ASG(auto-scaling groups) and per node
- Installed cluster-level Prometheus instances, AWS-managed Grafana, and Prometheus (AMP), using Terraform
- Built a **pipeline** to transfer data related to metrics from cluster-level Prometheus instances to AWS-managed Prometheus instance, utilized those to generate dashboards in Grafana using AMP as the primary data source using Terraform and Helm
- Built **custom dashboards** to generate meaningful insights from the collected metrics

Product Engineer

Students' Placement Office, IIT Kanpur   *March 2022 - June 2022*

- Created Recruitment Automation System for use in IITK by over **500 companies** and **2500 students** in the upcoming placement and internship phases each year
- Delivered enhanced security, scalability and achieved an **improvement** in response time by approximately **60%**
- Designed and built a **microservice** based backend with more than 150 endpoints in **Go** including context models, an async mailing system, a Content Delivery System
- Built a responsive frontend in **Next.js**, with features including type-based API calls, notifications, data filtering, a persistent store, Lazy Loading, page-level auth and RTE
- Ideated and wrote **CI/CD pipeline** for smooth deployment, orchestrated using **Nginx** and **Docker**
- Details about the solution architecture are available here ⬀

Microsoft

Cybersecurity Engage Program   *May 2022 - June 2022*

- Explored various aspects of cybersecurity including Cyber Forensics, Network Security and Malware Analysis
- Wrote a paper on *Safeguarding Indian Telecommunication Services* from a zero-day attack [`Also accepted at IJISRT`]

Skills

Programming	Go, Python, C++, JavaScript, Scala, Haskell
Web	Gin, Flask, Fiber, React, Redux, Akka
Database Tools	PostgreSQL, MongoDB, Redis, MySQL
DevOps	Docker, Kubernetes, AWS, Prometheus, Grafana, Nginx, Terraform, Helm
Miscellaneous	Git, Bash, ROS, LaTeX

Achievements

- Received the **Academic Excellence Award** for exceptional performance in Academics at IIT Kanpur
- Among the **top 25** teams(among more than 500 teams) in MIT's BattleCode 2021 Scrimmaging Rounds
- Among the **top 2.4%** of students, JEE Advanced 2020
- Among the **top 0.2%** of students, JEE Main 2020
- Among the **top 10%** programmers on Hackerearth in 2017

KEY PROJECTS

Digital Alpha SaaS Analyser
INTER IIT TECH MEET 10.0

⚯ SaaS-Analyzer

March 2022

- Developed a scalable web app and an ML pipeline to analyze SEC filings and obtain SaaS metrics for companies
- **Parsed** relevant sections (10K, 10Q and 8K) of the SEC Filings using BeautifulSoup and some external APIs
- Extracted SaaS metrics using NER, window search algorithm, used FinBERT (SOTA) to **analyze sentiments** along with section **summarization** using legal-pegasus
- Developed Frontend in **React**. Gave a modern look to UI using plugins like Chart.js to meet the problem statement
- Won the **Silver Medal** contributing to the **overall 2nd position** of IIT Kanpur among the **22** participating IITs

IITK Coin
SUMMER PROJECT, PROGRAMMING CLUB

⚯⚯ IITK-Coin

May 2021 - December 2021

- Developed a Go and React-Native application for a centralised **pseudo-currency** system for use in IITK
- Built the UI using custom components, axios, secure-store and redux, allowing multiple states and app navigation
- Involved Database Management, User **Authentication**, Hashing & Salting and User Session Validation with JWT
- Built robust REST APIs to handle **concurrent** transactions and multi-level user permissions

Autonomous Underwater Vehicle
TEAM AUV-IITK

Faculty Advisor: Prof. Indranil Saha

April 2021 - Present

- Improved the team website ⬈, which ranked **3rd** amongst **52** participating teams in **Robosub, 2021**, the largest competition for student-built AUVs in the world
- Utilized **Extended Kalman Filters** based SLAM algorithm to enhance pose estimation and navigation
- Implemented and researched the efficiency of graph-based, probabilistic, and deep learning-based SLAM algorithms like FastSLAM and RatSLAM in underwater conditions

MCMC Methods in Julia
SUMMER PROJECT, STAMATICS

⚯ MCMC-Methods-in-Julia

April 2022 - June 2022

- Implemented sampling methods including Accept-Reject, Inverse Transform and Importance Sampling techniques
- Learned the mathematics behind Bernoulli Factories, Bayesian Models, MLE, Regression, and Markov Chains
- Implemented MCMC algorithms like Metropolis-Hastings, Gibbs Sampler, Barker's and portkey Barker's algorithm

Full Stack Web Development
SEMESTER PROJECT, ACA, IITK

⚯ ACA-FSWD

April 2021 - June 2021

- Learnt HTML, CSS, JavaScript, React, MongoDB, server-side NodeJS, HTTP Requests & Headers etc.
- Implemented a front-end to connect APIs of a mock server using asynchronous JavaScript & error handling and developed a web app.

POSITIONS OF RESPONSIBILITY

Web Head
IIT KANPUR

Students' Placement Office

March 2022 - Present

- **Leading** a team of **5** Executives and **3** senior developers
- Maintaining the organization's servers and VM, designed new infrastructure including the website, CDN, and portals
- Solved critical networking challenges while various deployments within IITK and SPO internal networks

Team Head | Software Subsystem
IIT KANPUR

Team AUV-IITK

May 2022 - Present

- Leading a team of 50+ undergraduates to participate in international marine robotics competitions including RoboSub 2023 and SAUVC 2023
- Responsible for improving the software stack and design of our third generation **AUV-Tarang**

RELEVANT COURSES

Game Theory & Mechanism Design	Econometrics	Probability & Statistics	Real Analysis
Data Structures & Algorithms	Linear Algebra & ODEs	Modern Cryptology[i]	Introduction to Electronics

i: In progress

EXTRA CURRICULAR

- Mentored **30 students** in a project under Stamatics, covering Number theoretic theorems and their applications
- Helped **6 freshers** assimilate to IITK norms and **assisted** Counselling Service conducting Freshers' Orientation
- Maintain a personal webpage and blog at abhishekshree.xyz