Kingshuk Sadhu

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Experience

- **Enphase Energy** — Bangalore, India
  Software Engineer — *Jul 2022 – Present*
  - Automated a business requirement to generate a monthly report on the average discharge energy for Grid Services programs using a **Quartz scheduler**. Reports are uploaded to the **SFTP** server and **AWS S3** storage.
  - Designed and led the development of **site-control** feature to enables users to create multi-asset events driven by an intelligent algorithm. **Asynchronous** queues and topics (**AWS SQS** and **SNS**) are used to create real-time events.
  - Designed and led the development of a Notification Service. Used **asynchronous** messaging (using **AWS SQS** and **SNS**) between API servers and notification service. The notifications are filtered according to user preferences for both **emails** and in-app **alerts**.
  - Successfully optimized the latencies of 10 high-traffic APIs ($\sim$ 150-250 rps) in Grid Services, reducing the P95 latency of all these APIs under 200 ms.
  - Integrated **Redis** as a caching layer for Role-Based Access Control (**RBAC**) lists in microservices to optimize latency, alongside database **query optimization**, **indexing**, and **pagination**.
  - Designed and implemented **Dynamic Form** that stores metadata about a program's form. The form's properties can be configured by the admin. This has reduced the onboarding time for new partners.
  - Devised a new git branching strategy to accommodate **parallel program releases** into production.
  - Collaborated with the Product Manager to understand requirements and worked with the DevOps team to set up infrastructure for **notification** and **site-control** features.
  - Worked with the Enphase data team to develop a dashboard in **AWS QuickSight** for Grid Services, enabling Product Managers and the Customer Support team to more effectively understand and analyze production issues.

Skills

- **Languages**: Java, C++, Python
- **Technologies**: Spring Boot, Spring MVC, RESTful APIs, Maven, Gradle, MongoDB, AWS, Redis, Git, Kubernetes, Jenkins, Datadog, Jmeter
- **Others**: Cloud Engineering, OOP, Data Structure, Algorithm

Education

- **Indian Institute of Technology, Kharagpur** — CGPA: 9.16/10
  M.Tech in Instrumentation and Signal Processing — *Sep 2020 – May 2022*
  (Project in Image Processing using Federated Deep Learning)

- **Jadavpur University, Kolkata** — CGPA: 9.15/10
  B.E. in Electrical Engineering — *Jul 2016 – Aug 2020*

Projects

- ***Model Verifiability in Federated Learning (M.Tech Project)*** (**Github**): In **Federated Learning**, the vanilla federated averaging algorithm performs poorly when malicious clients are present. Here, a stochastic federated averaging technique has been implemented which can detect and reduce the effects of malicious clients while aggregating the models in the server. Used technologies - **Python**, **Pytorch**, **Deep learning**.
- ***Discussion Forum*** (**Github**, **Render.com**): Developed a question-answer-forum website called DoConnect. The frontend was built using **HTML**, **CSS**, **Bootstrap**, **JavaScript** and **React.js**, while the backend was implemented with **Node.js** and the **Express.js** framework. **MongoDB** serves as the database. Additionally, the app includes a chat feature, which was created using **Socket.io**.
- ***Pizza Store*** (**Github**, **Render.com**): Developed a Website for a Pizza store using **HTML**, **CSS**, **Bootstrap**, **Javascript** and **React.js**. A JSON server was utilized to store data and create mock APIs. **Role-Based Access Control (RBAC)** was implemented to manage access for both admin and user roles.
- ***Chat Application*** (**Github**): Developed a simple real-time chat application using **React.js**, **JavaScript**, and **CSS** for frontend. The backend was built using **Node.js** and **Express.js**, with real-time communication enabled through **Socket.io**.