Saalik Mubeen

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Summary

Software Engineer with over 3 years of experience developing scalable, high-performance applications with a keen interest in distributed systems, databases, deep neural networks, ML/AI and anything computer science.

Education

Georgia Institute of Technology (Georgia Tech) **Jan 2025 - Present**
Master of Science, MS in Computer Science *Atlanta, GA, USA*

National Institute of Technology Srinagar **2019 – 2023**
Bachelor of Technology, B.Tech in Civil Engineering — GPA: 8.239 *Hazratbal, J&K, India, 190006*

St. Josephs's Higher Secondary School, Baramulla **2018**
Graduated in science with: 94.6% in 2018 *Baramulla, J&K, India, 193101*

Research Experience

Indian Institute of Technology (IIT) Delhi **Jan 2024 – Dec 2024**
Research Fellow — Multiphysics & Multiscale Mechanics Research Group, Structural Engineering *Delhi, India*

- Conducted research on Physics-Informed Neural Networks (PINNs) to solve complex physical systems and dynamics using machine learning techniques, specifically focusing on applying deep learning models to problems in computational mechanics.
- Worked on novel Lagrangian Neural Networks (LNNs) to integrate physical laws, such as the principle of least action, into machine learning models, to predict the dynamics of deformable bodies and improving predictive accuracy and energy conservation in real-world mechanical systems
- Utilized PyTorch and JAX for efficient implementation of Lagrangian-based machine learning models

Work Experience

Arpari **July 2022 – Dec 2023**
Software Engineer *New York, USA (Remote)*

- As a **founding engineer**, led end-to-end development of critical features for a treasury management platform, enhancing payment workflows and external banking integrations.
- Architected and developed APIs using **Python, Django, and MySQL** to enable seamless fund transfers, contributing to a **23% increase in revenue** in the first quarter.
- Migrated frontend from Django templates to a React.js based single-page application, significantly improving UX by **reducing page reloads by 90%** and providing instant feedback.
- Optimized backend performance, **reducing load times by over 60%** through efficient database management and backend optimizations.
- Refactored the frontend codebase from class-based components to **React Hooks and Context API**, improving maintainability and readability.
- Successfully collaborated with a **global team** while working remotely from India, Asia

Self Employed **June 2021 – July 2022**
Independent Software Consultant

- Collaborated with startups globally, transitioning multiple platforms from legacy server side rendered templates to modern **Next.js** and **React.js** single-page applications, improving user experiences and app performance.
- Migrated systems from Node.js REST APIs to **GraphQL**, optimizing API requests and **reducing latency by 50%**.
- Developed cross-platform mobile apps using **React Native** and **Expo**, delivering intuitive user experiences.

Technical Skills

Frontend: HTML, CSS3, JavaScript, Typescript, React.js, Redux Toolkit, Next.js, React Native, Expo, Jest, Cypress
Backend: Nodejs, Express.js, Go (Golang), Python, Django, GraphQL, NGINX, gRPC, Django Rest Framework
Databases: MySQL, PostgreSQL, MongoDB, Redis, Firebase, Mongoose, TypeORM, Prisma
DevOps: Git, Docker, Kubernetes, CI/CD, Travis CI, AWS (EC2, ECS, S3, Lambda, API Gateway, DynamoDB, Cloudformation, Elastic Beanstalk, SNS, SQS, IAM, VPC, Route53, RDS, CloudFront, KMS), Vercel, Netlify, Heroku
ML/AI: Pytorch, Matplotlib, Pandas, Numpy, Scikit-Learn
Areas of Interest: Deep Neural Nets, Machine Learning, Distributed Systems, Database Engineering
Other Skills: DBMS, Operating Systems, Linux, Web Sockets, WebRTC, C/C++

Open Source Projects

TalkHouse | *React.js, Node.js, MongoDB, Redux, Typescript, Material UI, webRTC, socket.io, Docker, docker-compose*

- Built a **peer-to-peer video calling and messaging** app with WebRTC, implementing JWT-based authentication, online indicators, typing notifications, and group chats.
- Dockerized the application for easy local deployment and used MongoDB Atlas for database management.
- Scaled to **1,000+ active users**, recognized with **120+ GitHub stars** and **20 forks**.

Ticketing | *Next.js, Express, MongoDB, Typescript, Jest, Docker, Kubernetes, NATS Streaming, Stripe*

- Developed a highly scalable e-commerce platform using **microservices**, enabling real-time ticket sales for live events.
- Architected **7 independent microservices**, each handling distinct functionalities like authentication, orders, payments, and ticket management, with **Docker** containers orchestrated by **Kubernetes**.
- Employed **NATS streaming** event bus for asynchronous, fault-tolerant service-to-service communication, ensuring system resilience even during service failures.
- Integrated **Stripe** for secure, automated payment processing with expiring payment windows managed via Bull.js.
- Achieved **500+ GitHub stars and 28 forks**, validating the project's complexity and impact within developer community.

PaperHouses | *React, TypeScript, Ant Design, GraphQL, Apollo Client, MongoDB, Apollo Server Express, OAuth*

- Led the development of a rental platform similar to Airbnb with **Google OAuth** integration and **Stripe payments**.
- Implemented real-time chat with **GraphQL Subscriptions** and integrated **Mapbox** for property location displays.
- Achieved **38 stars and 9 forks** on Github

WhatsApp Lite | *React Native, Expo, TypeScript, Redux Toolkit, React Navigation, Firebase*

- Developed an open-source mobile chat application using React Native, Expo, TypeScript, and Firebase, replicating key features of WhatsApp.
- Implemented features, including user authentication and authorization, real-time chat functionality for both one-on-one and group conversations, and media sharing capabilities allowing image uploads in chat and status updates.
- Replicated WhatsApp features such as real-time message management (deletion, reply, editing), message seen status with blue ticks, and a comprehensive list of users who viewed messages in group chats.
- The repository received more than **60 stars** and **10 forks** on GitHub, reflecting positive community engagement.

ViT Paper Replication | *Python, Pytorch, matplotlib, torchvision, numpy, pandas*

- Implemented a PyTorch version of the groundbreaking paper "An Image is Worth 16x16 Words: Transformers for Image Recognition at Scale" by Alexey Dosovitskiy et al.
- Implemented the model architecture, which divides input images into fixed-size non-overlapping patches and linearly embeds them.
- Processed the resulting sequence of embeddings through a transformer encoder, using the first token of the output sequence as the image representation.
- Developed a feedforward network to produce the final output from the image representation.
- Achieved competitive results on ImageNet and other image recognition benchmarks, demonstrating the model's data efficiency and effectiveness.

Machine Learning from scratch | *JavaScript*

- Implemented various machine learning algorithms in JavaScript, including linear regression, multinomial logistic regression, and k-nearest neighbors from scratch without the use of any external library facilitating a hands-on understanding of ML concepts through code.

Other notable open source contributions

Goravel: PHP's Laravel like web framework for Golang developers (60+ stars on GitHub)
Go GRPC: gRPC backend server written in Go (50+ stars on GitHub)
JavaScript implementation of datastructures and algorithms: 75+ stars on GitHub

Language Skills / Interests

Interests

Music, Cricket, Dark Academia, Poetry, Travelling

Languages

Fluent English, Hindi, Urdu and Kashmiri