

Divyansh Singh

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Software Development Engineer

Experience

The University of Florida - NLP Lab, Full-Stack Research Engineer | Gainesville, Florida

April 2023 - Present

- Leading Research in Applied Sciences and Deploying LLM's for Education and Research use cases in Prof. Bonnie Dorr's Lab.
- Designed and built scalable **RESTful APIs** with **Flask** and **FastAPI** frameworks to serve transformer based **LLMs** including GPT-4, Falcon and LLAMA-2 backed information systems.
- Implemented robust model **containerization** leveraging **Docker** multi-stage builds and **Kubernetes helm charts** for portable deployment on **AWS EC2**.
- Horizontally scaled **Kubernetes** cluster on **AWS EKS** managing autoscaling node pools to handle high production loads on distributed systems.
- Developed interactive **React** chatbot frontend using **React Hooks, Redux, WebSockets, ContextAPI**.
- Leveraged **Bootstrap** and **Material UI** Components and templates to reduce bounce rate by more than 20%.
- Hardened model **APIs** using **JWT authentication**, rate limiting, structured logging with **ELK stack**, and **TLS** encryption
- Automated large-scale **LLM fine-tuning** jobs utilizing **Kubernetes CronJobs** and **GPU** node scheduling.
- Monitoring, logging and alerting on **Prometheus, Grafana** and **Sentry** for robust model API analytics.

ZS, Associate Intern | Remote

Jan 2022 - May 2022

- Developed scalable analytics pipelines leveraging **PySpark, SQL**, and **AWS** tools to process billions of healthcare records for advanced modeling and software systems
- Architected **REST APIs** with **Flask** web application to serve **ML models** to internal stakeholders for real-time decision support.
- Developed applications using **Spring Boot Microservice architecture, Spring MVC, Spring IOC** and **AWS services**.
- Built, tested and debugged over 100 **REST APIs** with **Spring MVC** and secured them using **JWT authentication** with **Spring Security** and **RBAC** to serve **ML models**.
- Leveraged **Spring IOC** for dependency injection and config management.
- Containerized services with **Docker** and **Kubernetes** for robust deployment of workflows.
- Created **REST API** data sources using **Spring Data JPA** and migrated on-prem data platforms to **AWS cloud (EC2, RDS, DynamoDB, S3)** to optimize cost.
- Followed **Agile** development processes collaborating closely with cross-functional teams to deliver new features meeting 100 % of **SDLC** (Software Development Life Cycle) timelines.

The LNMIIT, Research Assistant - Software Development Engineer | India

Aug 2019 - Feb 2020

- Developed a Computer Vision based exam proctoring system, enhancing efficiency in remote examination administration.
- Orchestrated backend services with **Flask**, integrated **RESTful APIs** for scalable front-end communication.
- Managed relational databases using **SQL** alongside **SQLAlchemy ORM** for optimized data operations.
- Deployed on **AWS EC2** with **Nginx** for load balancing, ensuring high availability and system resilience.

Education

3.94/4.0 **MS in Computer Science**, University of Florida | Gainesville, Florida, USA

2022-2024

4.0/4.0 **BTech in Computer Science and Engineering**, The LNM Institute of Information Technology | India

2018 - 2022

Courses: Data Structures and Algorithms, Software Engineering, Object-Oriented Design, Distributed Programming, Database Management Systems, Operating Systems, Computer Networks, Software Architecture and design patterns, Cloud Computing, Software Design, Machine Learning

Skills

Languages Python, JAVA, C, C++, JavaScript, Typescript, CPP, Bash, Erlang, CSS, HTML

Databases MySQL, Oracle(PL/SQL), MongoDB, InfluxDB, PostgreSQL, DynamoDB, Amazon RDS, SQLite

Frameworks React, Springboot and Microservices, Spring Cloud, Scikit, TensorFlow, Keras, Django, Flask, Django Rest Framework

Tools Docker, Kubernetes, Grafana, Maven, Terraform, TensorFlow, GraphQL, GIT, Jira, Prometheus, Helm, CI/CD, MVC, REST APIs, Postman, Agile

AWS EC2, EBS, EFS, VPC, Public and Private Subnets, NAT Gateways, S3, DynamoDB, Lambda, API Gateway, Security Groups, Network ACL, ELB, ECS, EKS, Auto-scaling, CloudWatch, SNS, IAM, Fargate

IDE Visual Studio/Studio Code, PyCharm, IntelliJ, CodeSandbox

Soft Skills leadership, problem-solving, teamwork, collaboration, highly motivated, innovative, reliable, commitment, flexible

Achievements

2023	Winner , Shellhacks 2023, The biggest hackathon in Florida, conducted by INIT FIU	Miami, USA
2022	Publication , 2022 International Conference on Artificial Intelligence and Smart Systems IEEE	Remote
2021	Publication , 2021 International Conference on Sustainable Energy and Future Electric Transportation IEEE	Remote
2020	Winner , at LNMHacks, among 200+ teams, for the best use of Microsoft Azure	Remote
2020	Microsoft Student Ambassador , Selected among 500+ applicants to represent Microsoft on campus	India
2018	All India Rank in Top 0.5% among 1.3 million candidates , Competitive Joint Entrance Examination 2018	India

Projects

CareerGPT

Sep 2023

Full-Stack Website, Hackathon Project

- Architected and implemented CareerGPT's back-end infrastructure using **Django**, integrating with **OpenAI's GPT-4 API** for **natural language processing** capabilities.
- Engineered **user authentication and account management** in Django, implementing **custom user models** and leveraging Django's built-in authentication frameworks.
- Designed and managed **URL routing** and view functions in Django to handle **HTTP methods** for **RESTful request handling** and using **SQLite** for database management
- **Recognized for innovation and digital transformation** in AI-assisted web technologies, securing a win at **Shellhacks 2023** against a competitive field of 790 participants.
- Utilized **Git** for source control management, orchestrating team code merges, timely pull requests, and feature deployments throughout the 36-hour hackathon.

myReddit

Jan 2023 - May 2023

Full Stack Website, Personal Project

- **Developed** "myReddit," a **Django-based social platform**, fostering **multi-user interaction** and community engagement, comparable to Reddit's model.
- **Optimized for high performance** by simulating real-world usage with tests involving over **100,000 virtual users**, ensuring the platform's **scalability** and **responsiveness**.
- Leveraged a full-stack development approach by utilizing Python and Django for server-side operations, **HTML5**, **CSS3**, and **JavaScript** for a dynamic and responsive user interface, and **MongoDB** for efficient data management. Further enhanced user experience with **AJAX** for asynchronous web requests and **WebSocket** for real-time communication.

JobPly

Jan 2022 - May 2022

Full Stack React App with django backend, Personal Project

- Engineered JobPly using **React.js**, **Django**, implementing robust and scalable web architecture.
- Built reusable **Django REST framework** backend implementing **JWT auth**, **Postgres** database, admin portal.
- Developed performant **React** frontend using **Hooks**, **Context API**, **lazy loading**, and **Suspense**.
- Implemented real-time communication with **WebSockets** and **Redux** for state management.
- Created responsive UI with **MaterialUI**, **Styled Components**, and **CSS** modules supporting 100,000+ users.
- Deployed on **AWS EC2** with auto scaling groups, load balancer, **RDS** ensuring high availability.

Recharts Dashboard Template

Jul 2023

Frontend Dashboard, Open Source Contribution

- Contributed to the development of a React dashboard template, integrated with Recharts, showcasing a comprehensive variety of chart types: bar, line, histograms, pie charts, among others.
- Infused the template with captivating animations and interactive hover effects, elevating its visual appeal and user experience.
- Implemented responsive dashboard layout using **React Grid** and **CSS** modules adapting to multiple screen sizes.
- Leveraged **Recharts** API to render performant interactive charts optimized for React.
- Built reusable React components for tables, dropdowns, modals using **Material UI** and **React Hooks**.

Certifications

2023	AWS Certified Cloud Practitioner , Cloud Certification - AWS
2023	DevOps for Absolute Beginners: Azure DevOps, Docker, Kubernetes, Jenkins, Terraform, Ansible - AWS, Azure & GCP , Udemy - Ongoing
2022	Python and Django Full Stack Web Developer Bootcamp , Udemy