Saurabh Chopra

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Education

Royal Holloway, University of London — Egham, Surrey, UK
MSc Artificial Intelligence — Sept 2021 - Sept 2022

Anand International College of Engineering — Jaipur, India
B.Tech Computer Science — Aug 2014 - Jun 2018

Work Experience

V7 — London, UK
Senior Platform Engineer — Oct 2023 - Present

- Ownership of CI/CD pipelines running on Github Actions and self-hosted runners on AWS.
- Making AWS/GCP/Azure infra compliant with SOC2, ISO and HIPPA controls.
- Building our AWS/GCP infrastructre and all operations involving upgrades of RDS,Redis,CI etc.
- Alerting system for AWS, GCP, CI, Wiz and internal infra. Triaging these alerts on a daily basis.

X-Chem (Glamorous AI) — London, UK
Machine Learning MLOps Engineer — Apr 2022 - October, 2023

- Contributed on building ArtemisAI (no-code platform) for ML training and predictions on huge datasets; which runs multiple heavy-duty ML training per hour.
- Built the platform (Job Server) using: Metaflow (by Netflix) - for re-usable workflows, Argo-Workflows on Kubernetes, With the Integration of Prometheus & OpenCostAPI. All infra was managed using Terraform.
- AWS services used are - EKS, EC2, ECR, SecretManager, S3, RDS, Elasticache etc. As a result, the training/prediction jobs were 50% faster (in comparison with the old architecture built on AWS Spark EMR), CPU/GPU Time consumption was reduced by 80% and is highly cost effective - as it runs mostly on SPOT instances
- Built CI/CD pipelines for multiple repositories using GitHub Actions, AWS CodeBuild, AWS CodeDeploy.
- Built microrepos that are pip installable; built a system to manage multiple python wheel packages and their versions on AWS S3 and are very easily deployable in CI as well. Tools used for packaging are python-poetry & python setuptools. Achieved 100% test coverage on all such core repositories with highly performant code.
- Built a server (Generative-Zoo) for serving 7 docker containers (which runs generative ML algorithms for input datasets on a big gpu instance) via API calls using the docker SDK for python; migrated to Argo Workflows later.
- Managed the main JupyterHub Server (Hub) which is used by multiple internal researchers everyday for mostly ML related tasks; making sure the consistency is maintained for all users.

Segmind — Egham, UK (Remote)
SDE - Open Source — Aug 2021 - March 2022

- Built MLOps platform for Deep Learning - where users can manage multiple Jupyterhub & VSCode servers in a multi-team setup.
- Built and maintained python open-source package 'segmind' - Command Line Interface to help you control every bit of the platform which is hosted on pypi.
- Built Mlflow-lite (based on open-source MLFlow) - customised specially for Experiment tracking and deeply integrated with Segmind's platform.

GramPower — Jaipur, India
Full Stack Lead — Dec 2019 - Aug 2021

- ML & AI algorithms for Appliance Disaggregation (from live Smart Metering Data - timeseries data) – Clustering and Unsupervised Learning algorithms
- Smart Meter (highly available APIs and cronjobs) integration with multiple government entities from bottom up (SOAP & REST APIs on Apache server) (Django + Spyne + Flask frameworks). Scaled the integration from 40 Meters to 40,000 Meters. Load/Regression tested for 0.2 million Meters.

- Payment Gateway integrations: PayU, PayTM, Razorpay (End to End integration for Android app & Web app) (used Django for API's and vanilla Javascript for UI)
- DevOps: New Integrations to the platform - Redis (cashing layer), RabbitMQ (queuing of datapoints), StreamSets (ETL layer) on AWS & GCP. Productionize PostGREs with TimescaleDB as docker containers on AWS EC2
- Cloud migration from AWS to Google Cloud: re-architect whole infrastructure as independent entities (containers) which are deployable on third-party server(s) with: NodeJS, ExpressJS, Python, Django, Flask, MongoDB, PostGREs, StreamSets, Redis & Kafka.

Thoughts2Binary Gurugram, India
Full Stack Developer June 2018 - Dec 2019

- Multiple Open Source CMS's integrations with Django (Monolith application) & Serverless (Microservices application) based Middleware platform – with secure communications of CMS(s) and the middleware platform.
- Migrated the previous Django based platform to Serverless by writing re-usable core services and deployment via AWS Lambda, SNS, S3 etc.
- Development of custom plugins for multiple open source CMS(s): Drupal-Commerce 2, Wordpress-WooCommerce, Kentico.
- Payment Gateway Integrations: Stripe/Paypal Payment Gateways, U.S Tax APIs, among many functionalities.
- Star Performer reward for factors like responsibility, ownership, hard work and handling complex issues easily.

Florida International University Miami, FL, United States
Cyber Security Research Intern May 2017 - June 2017

- Deep dive in Linux Operating System with understanding and writing of Device Drivers (C Language) - (Implement it further with BeagleBone Black) - under the supervision of Dr. Alexander Perez Pons

Skills

Programming Languages:	Python (Expert), Shell Scripting, Rust, Go
AI/ML Tools:	PyTorch, Tensorflow, Scikit-Learn, MMDetection
Cloud Platforms:	AWS (Expert), GCP, Azure, DigitalOcean
APIs:	REST, SOAP, GraphQL, WebSockets, MQTT
DBs:	PostgreSQL, MySQL, TimescaleDB, MSSQL, MongoDB
VCS:	Github, Gitlab, Bitbucket

Projects

Dissertation and Paper: Action Recognition on UCF datasets with CNN-RNN models *Python*
Using models like CNN, RNN, CNN-RNN, Average Fusions - designed and compared 22 Models and evaluated them on UCF datasets (around 60GB) - Result: 95% Accuracy on UCF-11 dataset

Deep Learning - Image Classification with Convolutional Neural Networks *Python, Tensorflow*
https://bit.ly/3a9CSgf
Implemented Deep Neural Network based methods to classify Fruits vs Meat Image Classification with Regularisation and Model Optimization techniques - SMaiLE Project

R - Built algorithms from first principles of mathematics *R, Python* https://bit.ly/3JFZ8LV
Algorithms developed - Gradient Descent, Random Forest and Agglomerative Hierarchical Clustering

Artificial Intelligence - A* Search Algorithm Implementation *Python* https://bit.ly/3EQxbNK
A* Algorithms to solve n Pegs + n Discs - Tower of Hanoi Problem + with Pattern Database Heuristics (additional Pickle Package Support)

MATLAB - Developed Machine Learning Algorithms from baseline math concepts. *MATLAB*
https://bit.ly/3HAPp81
Matlab programming for data analysis, including writing scripts, functions, advanced plotting, manipulating strings and using cell arrays and structure variables.

Natural Language Processing - Text Summarization - Extractive & Abstractive - 200GB data
Python https://bit.ly/3a9CSgf

Implemented Transformers based methods for Text Summarization. Italian movie recommendation system using Speech to Text, Text Translation (Italian to English) and TF-IDF/Cosine Similarity - SMaiLE Project

Awards

2nd Position - Hackathon(21) - CompSoc Computing Society - Royal Holloway, University of London
YouTube (Video) -> (Audio) -> (Text) Search. Link:
https://github.com/saurbhc/compsoc_freshers_hack.git Sept 2021

Judge & Staff - Royal Hackaway V5 Computing Society
Managed, Judged and Directed Royal Hackaway V5 Hackathon with a role Competitions Director. Link:
https://royalhackaway.com/ Feb 2022