Jyotish P

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Work Experience

Indeed, Hyderabad, India

Site Reliability Engineer   Aug 2022–Present

Technologies: Java, Spring, Python, Terraform, Kubernetes

- Responsible for the resiliency, reliability and operational excellence of services for Indeed's employer facing revenue citical services.
- Proposed MLOps best practices and tools required to achieve them for all job-candidate matching (rankers) teams.
- Built ML model score drift checker to ensure consistent results across different model versions released.
- Worked on multi region resiliency and performance optimzation for various services that were part of sponsored jobs including API services, databases, and spark jobs.
- Developed multiple terraform modules that could be re-used by various teams to setup SLOs, monitors and spin up database clusters.
- Part of global on-call for services across Indeed.

AIcrowd, Geneva, Switzerland (Remote)

Director of Technology   Feb 2021–Aug 2022

Technologies: Python, FastAPI, Django, Argo, Kubernetes, Helm, DL Frameworks

- Responsible for the company wide infrastructure and services ranging from internal tools and public APIs for machine learning experiments, kubernetes clusters, CI/CD pipelines.
- Built evaluation platform that evaluated 120K+ ML solutions for various challenges hosted on AIcrowd with 99.95% uptime and latency SLO and organized multiple machine learning benchmark competitions.
- The evaluation platform leverages kubernetes APIs and is designed to scale by making each evaluation manage its own resources (using a mix of sidecars and service pods per evaluation).
- Co-organizer and helped with setting up the baselines for multiple benchmarks and competitions hosted on AIcrowd (NeurIPS 2022 Neural MMO Challenge, IJCAI 2022 Neural MMO Challenge, NeurIPS 2021 NetHack, NeurIPS 2020 Procgen benchmark, ZEW's data purchasing challenge, Alzheimer's detection challenge, Food recognition benchmark, Learning to race challenge).

Site Reliability Engineer   Nov 2019–Jan 2021

Technologies: Kubernetes, Argo, Docker, Python

- Built a machine learning solutions evaluation platform using Argo (a kubernetes native workflow manager).
- New challenges/competitions can be created easily by defining the specifications in a single file.
- Responsible for maintenance and deployment of company wide infrastructure and services.

Swiggy, Bengaluru, India

Software Development Engineer   Jul 2020–Jan 2021

Technologies: Go, Java, Spring

- Worked on high throughput data enrichment pipelines.
- Migrated a monolithic payments service to micro services based architecture.
- Developed and integrated in-house DSL and query system for processing and querying payment rules.

Software Development Engineering Intern - Swiggy   May 2019–Jul 2019

Technologies: Apache NiFi, Geomesa, Kubernetes, Docker, Scala, Java, Python

- Developed Redis NiFi plugin and ScyllaDB adaptor for existing GeoMesa NiFi plugins.
- Built and deployed a geo-data analysis platform using Apache NiFi, Geoserver, Kepler.gl.
- Developed a python bot to monitor git repositories for best practises validations and security vulnerability analysis as a part of engineering excellence initiative.

IIIT Hyderabad, Hyderabad, India

Systems Administrator - RRC, IIIT Hyderabad   Mar 2018–Jun 2020
Technologies: OpenVZ, Docker, Kubernetes, LDAP, High Performance Computing, Python, Go
- Setup a highly available directory server using FreeIPA and Pacemaker.
- Aided the design of the centre's HPC cluster setup.

Undergraduate Research Assistant - RRC, IIIT Hyderabad   May 2017–Jun 2020
Technologies: Optimization methods, Statistical inference, PyTorch, ROS, C++, Python
- Worked on developing different motion planning algorithms under uncertainty.
- As a part of research collaboration with Collins Aerospace, developed different navigation frameworks for fixed wing UAVs in urban environments.

Student Systems Administrator - IIIT Hyderabad   May 2017–Oct 2019
Technologies: OpenVZ, Libvirt, LDAP, Proxy, Load balancer, Networks, Email Suites, DNS, Radius, Nagios
- Responsible for on-call, maintenance, deployment of campus-wide infrastructure and services.
- Custom auto-discovery and load balancing for domain wide web services that reverse proxies over 150 domains.
- Aided in building and deploying a transparent proxy using an SSL interception service that preserves the destination address as a domain name (so that the domain name based ACLs on parent proxy work) using SNI. This setup doesn't need a root CA installation on the clients.
- Setup hybrid mail routing between GSuite, Office 365 and on-prem mail servers. Built and deployed various web portals for managing network access for guests, course feedback system, mailing list archives, etc.
- Developed an application for guest account management for campus-wide IT resources.
- Mentored the next generation of student system administrators.

Education

B. Tech. (Honors) and MS by Research in Electronics and Communications   IIIT Hyderabad

Master's Thesis: Motion planning under uncertainty   **[PDF]**
Robotics Research Center (RRC), IIIT Hyderabad   *Advisor: Dr. K. Madhava Krishna*
My thesis aims to understand various ways to navigate UAVs in complex environments under uncertainty. As a part of it, the collision avoidance and navigation problems are posed as a chance constraint optimizations (CCO). Various tractable solutions for CCO are explored. My thesis work was applied to a sponsored project from Collins Aerospace which demanded a robust motion planning algorithm for dynamic, uncertain environments with a positive feedback from the sponsors.

Publications

Journals

2021 JMLR Measuring Sample Efficiency and Generalization in Reinforcement Learning Benchmarks: NeurIPS 2020 Procgen Benchmark [PDF]

2020 RA-L + ICRA Reactive Navigation under Uncertainty through Hilbert Space Embedding of Probabilistic Velocity Obstacles [PDF]

Conferences

2021 ECC Probabilistic Inverse Velocity Obstacle for Free Flying Quadrotors

2019 Ro-MAN PIVO: Probabilistic Inverse Velocity Obstacle for Navigation under Uncertainty [PDF]

2019 AIR IVO: Inverse Velocity Obstacles for Real Time Navigation [PDF]

White paper Learn-to-Race Challenge 2022: Benchmarking Safe Learning and Cross-domain Generalisation in Autonomous Racing. [PDF].

Selected Projects

Multi-objective de-novo molecular generation using Deep Reinforcement Learning [PDF]
Developed a system to generate a set of candidate drug molecules given a set of desired molecular properties like melting point, SA score, solubility, number of benzene rings. An RNN is used to generate valid SMILE sequences describing molecules while RL based optimization is used to bias the RNN to generate molecules with desired molecular properties.

Poisson Image Editor [GitHub]
Image editing tasks posed as optimization problem using differential equations and gradient fields.

Neural Captioning [GitHub]
Implemented the image captioning models from "Show and Tell" and "Show, Attend and Tell" both containing a CNN and LSTM. The latter model also implements attention before sending the input image features to the RNN.

Unrolling the Shutter [GitHub]
Implemented a Row-Column kernel based CNN for correcting the distortion caused due to rolling shutter of the camera from a single image. Tried to improve the results using appearance flow.

MISC

- Invited to Dean's Dinner 2017-18 (for academic excellence), 2018-2019 (for research excellence)
- Club Coordinator, Photography Club, IIIT Hyderabad   2017-2018
- Systems Administrator, Felicity 2018   2018
- Photographer, Media Team, IIIT Hyderabad   2016-2017