Vipul Nayyar

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Faridabad, India

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*A highly skilled Senior Engineer with a focus on **Cloud** and **Distributed Systems**, interested in **Dev**, **DevOps, SRE** and **Systems** related roles.*

Education

Masters in **Distributed Systems Engineering**	2017- 2019	TU Dresden, Germany	1.6 (German Scale)
B.Tech (Computer Engineering)	2011 - 2015	Jamia Millia Islamia, New Delhi, India	8.80/10

Experience

Alces Flight Limited, Remote

Development Lead — Feb 2023 - Present

- Contributed to 'Concertim', a cloud visualization and management product built in **Python**. Responsible for development of billing service and related components.
- Built tools in **Bash** and **Python** for Slurm and **Openstack** cloud integration, suited for **HPC** customer environments for launching Remote Desktop environments.
- Improved **Energy efficiency** of company's private cloud by modifying **Nova** Scheduler logic to start a stopped compute node when a VM launch is requested, and shutting it down when VM is deleted.

Boston Limited, Remote / Bangalore, India

Senior Cloud Architect — Mar 2020 - Jan 2023 / Jun 2016 - Sep 2017

- Worked on the **HPC-on-demand 'Vscaler'** cloud platform, built on top of **Openstack** to reduce the time needed to setup and provision an HPC cluster with fully setup common libraries and an OpenHPC package environment. **Refactored core Openstack code** in **Python** to implement additional data processing functionalities, identified bugs in released packages(Liberty) and contributed patches back to the community.
- Working as part of the HPC team, enhanced and benchmarked applications for High Performance Compute and storage systems, while closely working with Supermicro servers.

SAP, Big Data Team(*Data Hub*), Walldorf, Germany

Software Development Intern / Master's Thesis Student — Apr 2019 - Dec 2019

- Designed a multi-layer **FUSE** filesystem framework, to store data and metadata files using a zip-inside-zip model, written in **Golang**. Devised a custom on-the-fly zipping and unzipping mechanism that can be implemented on a data stream for transformation of file data along with storage of relevant metadata as a single entity.
- Built a **storage adapter** on FUSE layer for **SAP Data Hub**, for automatic **compression** and **decompression** of files while reading and writing from **S3** cloud storage.
- **Enhanced** existing **slow data transfer speeds** by adding **streaming capability** over cascading mounts, with the ability to do **efficient random reads** from **compressed file formats** like gzip.

Systems Engineering Group, TU Dresden, Germany

SHK : Student Assistant — Apr 2018 - Dec 2018

- Designed and developed a framework in **C** & **Python** to implement **side channel micro-architectural attacks**(Flush-Reload and Prime-Probe), by exploiting the Last Level Cache of Intel processors. Integrated visualization capabilities to process read/write latency values obtained from cache attacks with matplotlib graphs.

GoZoomo (YoungMonk Technologies Pvt. Ltd), Bangalore, India

DevOps Engineer — Jul 2015 - Jun 2016

- Built the company wide **ETL data processing engine** in **Python** from ground up which extracts and processes data streams from each service to be stored in a queryable format in **AWS Redshift** warehouse. Responsible for deciding events data tracking strategy as Tech owner of **Analytics** and **Infrastructure**.
- Contributed to website backend services written in **Clojure** and **Ruby.**
- Designed and implemented highly available and scalable infrastructure systems on AWS, to deal with constantly changing business requirements. Transitioned the already present ad-hoc infrastructure to a more scalable one with a **single-click** and revertible **deployment** mechanism, custom-built on **Jenkins** and the **Amazon EC2** API.

Red Hat (GlusterFS)

Google Summer of Code Student Developer — Apr 2014 - Aug 2014

- Built a **performance monitoring tool**, glusterfs-iostat in **Python** which **calculates I/O statistics** like read/write speed, total data read/written from currently active GlusterFS mounts. Contributed patches to the core **Red Hat GlusterFS** repository. Developed a command line and visualization functionality to display current stats through readable text, JSON output and live web graphs.

RTEMS (Real-Time Executive for Multiprocessor Systems)

Google Summer of Code Student Developer — May 2013 - Jan 2014

- **Refactored interrupt handling API** in RTEMS kernel and developed **shell scripts** to identify standard patterns of code implementation and file inclusion, so that all Board Support Packages in RTEMS follow a common standard.

Skills

- **Programming Language and Scripting :** Bash, Python, Golang, Javascript, C++, Java, Clojure
- **Frameworks :** MPI, OpenMP, CUDA, GTK, jQuery
- **Version Control :** Git, SVN
- **Platform/OS :** GNU/Linux, Mac OS, Windows
- **Cloud Infrastructure :** AWS, Docker, Openstack, Ansible, Kubernetes, Jenkins, KVM, Zookeeper
- **Social Platforms :** Facebook Open Graph**,** Google Apps Script
- **Kernel Programming** : Linux, Fiasco(L4Re),
- **Spoken Languages** : Hindi(Native), English(Fluent), German(Basic)

Achievements

- **Highest Linpack score award** during **Student Cluster Competition** at **ISC High Performance Conference 2015, Frankfurt** for a world record breaking score of **10.78 Tflops** under **3kw** power restriction.
- Nominated by my Master's thesis supervisor to the **SAP *FastTrack-program***, for being in the **Top 10% performers** among the student interns at SAP HQ, Walldorf.
- Won award for securing **highest marks in Computer Science** in school for AISSE (CBSE Class XII) 2011.
- Won **Silver Medal** for being **State Topper** in 10th **National Cyber Olympiad**, 2010-2011.
- Awarded a **scholarship** worth INR 18,000 by Eicher School, Faridabad in grade 11th and 12th each, based on excellent performance in CBSE AISSE, 2009(Class Xth Board exams).
- Selected for a **travel grant** provided by Openstack Foundation, to attend the **Openstack Summit 2016** in **Austin, Texas**, for technical contribution to projects and community engagement.
- Built a Facebook application at a 24 hour hackathon - Facecode, organized by KRDS. This app was considered among the **top 10** apps out of over 100 apps submitted from all over India.
- Won free tickets to **Startup Weekend** Delhi. Networked and formed a team which built a whole product - a community driven anti-corruption forum in 54 hours. Placed **2nd** among 15 other startups.

Publications

- Ahmad U., Nayyar V., Alam B. (2016) Storage Optimization of Cloud Using Disjunctive Property of π. In: Satapathy S., Raju K., Mandal J., Bhateja V. (eds) Proceedings of the Second International Conference on Computer and Communication Technologies. Advances in Intelligent Systems and Computing, vol 380. Springer, New Delhi