Darshan Sanghani

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Objective:

Applying my skills in programming, software and infrastructure development. With a passion to build *complex yet simple*, *intelligent*, *efficient* platforms to facilitate accelerated growth.

Education:

UNIVERSITY OF ILLINOIS   Urbana-Champaign. IL

Bachelor of Science in <u>Computer Science</u>, Dec 2012.

Related Coursework:

- <u>Software Engineering I/II</u>: Applying software analysis & design techniques to make world-class software.
- <u>Data Structures</u>: Learning, designing, implementing various data structures used in computer science.
- <u>Fundamental Algorithms</u>: Fundamental techniques for algorithm design and analysis.
- <u>Embedded Systems</u>: Learning very low level programming in order to interact with micro-controllers.
- Other relevant courses such as Programming Languages & Compilers, Systems Programming, Computer Architecture, Theory of Computation, Database Systems. Graduated on finishing *Software Engineering Courses*: A set of courses to increase proficiency in various industry level software development technologies and paradigms.

Technical Proficiency:

- Programming Languages (Active): Java, Go, Python, C++, Javascript (React)
- Programming Languages (Used in Past): C, OCaml, Objective-C, PHP, Javascript.
- Frameworks/Libraries/Environments: React Native, OCI, AWS, Azure, OpenStack, Puppet, OpenVSwitch, Terraform, Logstash, Kibana, Zabbix, Node.js, Allegro, jQuery and many more.

Professional Experience:

<u>Meta Inc.</u>   Menlo Park, CA

Senior Software Engineer   May 20 – Present

- • System design and network performance for distributed AI inference used in Ads Serving.
- • Performance, *sizing* and *placement automation* for cutting edge *NNPI* and *GPU* hardware.
- • ML models *feature quantization* to improve efficiency while ensuring no loss in prediction accuracy.
- • Network and *RDMA architecture*, sizing and utilization optimization of Meta's AI Training Clusters (internal cluster fleet similar to *AI Research SuperCluster*)
- • Lead cross functional efforts across Facebook, WhatsApp, Instagram and Oculus product groups for ensuring training cluster *fleet telemetry, performance and capacity*.

<u>Oracle Cloud</u>   Santa Clara, CA

Senior Member of Technical Staff   Sept '17 – May 20

- • Architect, develop, deliver and optimize product offerings on Oracle Cloud Infrastructure (OCI).
- • Drive *initial design, architecture reviews, development, limited availability to global availability* for products - Service Gateway, Private Endpoint and OCI Marketplace. These services have enabled huge monetary inflows for Oracle Cloud and have been designed to be more rich than our competitors.
- • Developed and owned *high throughput data-replication* for packet's session persistence and high availability within our services for high performance and efficiency.
- • Developed and owned *data processing, replicated caching and distribution service*. Designed faster state convergence from control plane to data plane using performance engineering techniques..
- • Designed and contributed to our public service's *API specifications and public SDK* delivery, member of the API review board in Oracle Cloud.
- • Developed and owned a service for *canary testing, usability testing, failure and bottleneck identification* for our services across all availability zones, integrated it with our SRE toolset for telemetry.
- • Define the product roadmap, feature development, capacity planning, cross-functional team integrations and budgeting to provide leadership estimates for better resource management.

<u>Medallia Inc.</u>   Palo Alto, CA

Senior Software Engineer in Cloud Engineering   March '16 – Sept '17

- • *Team lead for Cloud Infrastructure:* Breathing fresh air and innovation to address SaaS centric cloud infrastructure software through non-conventional but scalable solutions.
- • Designed the complete infrastructure for AWS based multi-AZ Mesos/Aurora Docker container cluster management, a problem not everyone has solved yet.

• Design and development of a serverless "multicast replacement" *route sharing protocol* for container clusters based on *gossip-style membership* based on the *SWIM*, with *automated touchless router failovers*. This solves container cluster route sharing problem on public clouds (AWS, GCE) without the need for SDN overlays.
• Develop and scale *serverless, RPC-enabled Docker volume drivers* for AWS for a unique way to manage block storage, with focus on performance and efficiency of block volume usage.
• Coined, Designed and developed an *Infrastructure Model Manager*, this is the *first of its kind* tool for packaging, managing and one-touch deploying of entire distributed systems patterns/model.
• Helping *guide a team of bright developers* to decompose a problem into components, engineering solutions with them and encouraging vision and ownership.

eBay Inc.   San Jose, CA
Software Engineer in Cloud Engineering   Feb '13 – March '16
• *Core cloud networking team:* architected and built efficient cloud services (*LBaaS, DNSaaS*) and backend *SDN* (control plane and data plane) networking; to be used by the entire eBay Inc.
• Architecting in house, developing and also *contributing to the community* Designate project (OpenStack *DNSaaS, Launchpad ID: darshan104*).
• Planned, built an automated framework to *reduce cloud deployment time* from a month to a few hours.
• Implemented a robust metric collection system and integration with Zabbix to *have 24x7 monitoring and alerts*.
• Developed numerous configuration modules in *Puppet* for automated OpenStack components.
• Constantly thrived on adding optimizations*, scalability fixes*, features across cloud components, mainly *networking* and *compute*; along with *periodic contribution to the community*.

Computerized Assessments & Learning   Lawrence, KS
Software Developer Intern   Summer 2012.
• Responsible for writing the foundations of porting the in-browser *JavaScript* exam engine to mobile platforms (specifically iOS).
• Decided on minimizing dependency on native mobile frameworks to facilitate quicker and uniform expansion.
• Came up with & added new features like inline video playback, audio responses (w/ uploading).
• Self implemented a better and more responsive audio-level metering feature using *transformation matrices and interval mapping*, thus also reducing the dependency on third party libraries.

QLess Inc.   Altadena, CA
Part time Software Developer   Nov'11-May'12.
• In charge of solving issues customers face with the product on-site. Differentiating a bug from a glitch, *identification, segregation and solution*.
• Provide *preemptive support automations* to predict the nature of service degradation and their solution.

DebtManager   Champaign, IL
Creator   Summer 2011.
• One of a kind iOS application to help students, friends and people manage informal/casual debts.

Herd   Champaign, IL
Co-Creator   Spring 2011.
• Application solving Facebook's 'find nearby friends' and 'events' use cases way before they even existed.

Personal Projects:
- HNUpvotes, a node application to <u>filter the latest and the best from HackerNews.</u>
- Built a <u>gesture recognizer for Kinect</u> to be integrated with media players to allow controls like play/ pause/ stop/ enlarge and others through hand gestures.
- Built a <u>lyrics search engine using BM25 retrieval formula with Rocchio feedback</u>, also implemented document clustering, query likelihood methods for experience, user also gets a link to the specific song on YouTube, this was achieved with YouTube API. This was done on the LemurCGI search engine template.
- Experienced with SDN, specifically <u>writing control logic for OpenFlow switches</u>, NOX controllers and creating a virtual network topology using Mininet.
- Built a <u>VoIP application from scratch in Python</u>, using a SIP library (PJSip). The idea is to help musicians jam online; we plan on minimizing the latency issues by compressing the audio before dispatch.
- Built a <u>flight scheduler application in Python</u>, which feeds off flight info from a JSON file and analyses the data to find the shortest path (Dijkstra's algorithm), time of travel, cost etc.
- <u>Game development using Allegro framework</u>: Developed a cross-platform 2D tile based platform game using the Allegro 5.0 Framework with an in built sprite cutter and background transformer.
- Developed <u>software for a chain of retail stores</u>, for *gathering data & analyzing product motion* which helps in identifying which class of products are bought more and less at a particular time of the year or month under a set of field values like weather type, if any festival. Thus helping them manage inventory more profitably.
- *(These and more of my projects can be found on my **gitHub (handle: dtx)**)*