Aman Mangal

mangalaman93@gmail.com ◇ +91(828)-630-9049
LinkedIn/amanmangal ◇ GitHub/mangalaman93

Education

Georgia Institute of Technology, Atlanta, GA, USA
MS in Computer Science (Specialization: Systems), GPA 3.71/4 [Aug'14 – Jun'16]

Indian Institute of Technology, Bombay, India
B.Tech. (Hons.) in Computer Science & Engineering, GPA: 8.54/10
Minor in Electrical Engineering [Aug'10 – Jun'14]

Programming Skills

- **Languages:** C, C++, Golang, Erlang, Java, Python, OCaml, Bash, CUDA, OpenMPI
- **Tools/Platforms:** Linux, Git, Docker, Kubernetes, OpenStack, OpenFlow, Hadoop

Professional Experience

Lumiata Inc, Mumbai, India [Nov'16 – Jan'17]
Data Engineer (Mentor: Prashant Kukde)

- Scaled the existing *Spark* cluster to possibly hundreds of nodes by containerizing all the services using *docker* and performing manual orchestration using *docker-compose*
- Setup a secure *docker* registry server, a UI server to browse through docker images as well as *Kubernetes* cluster for running multi node *Spark* cluster

ZeroStack Inc, Mountain View, CA, USA [June'16 – Sept'16]
Member of Technical Staff Intern (Mentors: Gautam Kulkarni, Kiran Bondalapati)

- Implemented support for adding external storage to ZeroStack using OpenStack Cinder drivers, extensible to future Cinder drivers with minimal changes to ZeroStack
- Ensured atomicity, eventual consistency and recoverability on crash or power failures

Bell Labs, Murray Hill, NJ, USA [Jun'15 – Aug'15]
Summer Intern (Mentors: Martin Carroll, Ilija Hadzic, Christian Hans Woithe)

- Developed a monitoring infrastructure for Linux containers using *collectd*, *influxdb*, *grafana*
- Compared load prediction and packing algorithms using Discrete Event Simulation technique for "streaming" containers assuming a exponentially distributed workload

Key Projects Undertaken

Raft Consensus Algorithm for Data Center Network [Sep'15 – Dec'15]

- Analyzed performance of Raft consensus algorithm (in *etcd*) in presence of heavy network load and improved it by assigning high priority to *etcd* messages than congestion traffic
- Evaluated the idea on a 5 node cluster of *etcd* key-value store using banana pi boards

Fault Tolerance in Software Defined Networks (SDNs) [Oct'14 – Dec'14]

- Proposed an algorithm for handling link failures in SDNs and implemented it in *pyretic*
- Proactively installed flow table rules using *OpenFlow* to reduce downtime

Erlang Distributed File System (Undergraduate Thesis) [Jul'13 – Dec'13]

- Developed a Distributed File System (eDFS) from scratch having master-slave architecture
- Implemented read and append operation in eDFS similar to Google File System (GFS)

Publications

1. **Aman Mangal**, Arun Mathew, Tanmay Randhavane and Umesh Bellur. "DEBS Grand Challenge: Predicting Power Needs in Smart Grids". In Proceedings of the 8^{th} ACM International Conference on *Distributed Event-Based Systems* (DEBS '14)

Academic Achievements

- Secured All India Rank 70 in IIT JEE 2010 and All India Rank 256 in AIEEE 2010
- Stood amongst top 1% students in Indian National Physics Olympiad, 56^{th} in National Science Olympiad (NSO), 7^{th} in second round of Indian National Mathematics Olympiad
- Selected for Google Summer of Code 2013 (*BEAM* community) and developed *Erlang* Package Manager to create and maintain index of Erlang packages