Anshu Shukla

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Google Scholar

Education

Indian Institute of Science(IISc) Bangalore
Master of Science in Computer Science; GPA: 6.3 / 8 *Sep 2014 – Aug 2017*
Research Advisor: Dr.Yogesh Simmhan
Research/Coursework: Distributed Stream Processing and IoT, Introduction to Cloud Computing, Distributed Systems, Design and Analysis of Algorithms, Databases, Data Analytics

Institute of Engineering & Technology Lucknow
Bachelor of Engineering in Information Science; Percent: 77% *Sep 2009 – Jun 2013*

Experience

Ericsson: *Cloud Engineer(Research)* *Sep 2017 – current*

- Designed and developed a generic distributed Metadata management framework for Edge and Cloud based on Apache Atlas and Dgraph. Helped in getting better insights and feedback by recording provenance of data and processes in deployed Data pipelines.
- Developed a Decentralised Application for Tenant management system for Distributed Cloud using Blockchain. Experimental analysis shows it's performance is comparable to the Openstack Keystone.
- Filed more than 10 **patents** as part of the above projects. [*Published Link*]

Projects

MetaData Management framework: *GoLang, Java, Apache Atlas, TinkerGraph, Dgraph* *Ericsson*
Designed a distributed, domain agnostic metadata framework for Edge and Cloud. Implemented common type-system and notification based synchronization for Dgraph(Edge) and Atlas(Cloud).

Saranyu: *Golang, Solidity, Web3, Quorum blockchain* *Ericsson*
Developed a decentralised and tamper-proof application for Tenant and Service account management in Cloud using Blockchain. The dApp showed comparative benchmarks to Openstack Keystone with added benefits of using Blockchain.

Apache Storm: Dynamic Dataflow Migration: *Java, Python, Apache Storm* *Master's Thesis*
Developed approaches for dynamic dataflow Checkpoint and Migration with no loss of in-flight messages and internal state. Evaluation shows migration time < 50 *sec* with scale-in & out on Apache Storm, no message re-processing and minimal stabilisation time after migration.

Model-driven Scheduling for Stream Processing Systems: *Apache Storm* *Master's Thesis*
Proposed a model-driven approach for scheduling streaming applications. Models based on applications helps in reliable estimation of resource Allocation and Mapping with predictable application performance. Experiments shows 50% lesser resource requirement and highly accurate prediction for resource utilisation with $R^2 > 0.81$.

Technical Skills

Programming: Java, Python, Golang, Bash, C++, Solidity
Technologies: AWS (EC2, EMR), Docker, Git, Nginx, Geth
Big Data Frameworks: Storm, Spark, Atlas, Hadoop, DGraph

Publications (*Link*)

- S Nayak, NC Narendra, *Anshu Shukla*, J Kempf, **Saranyu: Using Smart Contracts and Blockchain for Cloud Tenant Management** in IEEE International Conference on Cloud Computing. [***CLOUD-2018***]
- *Anshu Shukla*, Yogesh Simmhan, **Toward Reliable and Rapid Elasticity for Streaming Dataflows on Clouds** in IEEE International Conference on Distributed Computing Systems. [***ICDCS-2018***]
- *Anshu Shukla*, Yogesh Simmhan, **Model-driven Scheduling for Distributed Stream Processing Systems** in Journal of Parallel and Distributed Computing.*(Journal)* [***JPDC-2018***]

- *Anshu Shukla*, Shilpa Chaturvedi, Yogesh Simmhan, **RIoTBench: A Real-time IoT Benchmark for Distributed Stream Processing Platforms** in Concurrency and Computation: Practice and Experience.*(Journal)* [***CCPE-2018***]
- *Anshu Shukla*, Yogesh Simmhan, **Benchmarking Distributed Stream Processing Platforms for IoT Applications** in TPC Technology Conference on Performance Evaluation & Benchmarking, co-located with International Conference on Very Large Data Bases, 2016. [***VLDB-2016***]
- Yogesh Simmhan, *Anshu Shukla* and Arun Verma, **Benchmarking Fast Data Platforms for the Aadhaar Biometric Database** in 7th Workshop on Big Data Benchmarking [***WBDB-2015***]

Achievements

- Published Ericsson public blog on *Saranyu: Building a Virtual Services Marketplace with Smart Contracts.*
- Served as a Teaching Assistant for the **Scalable Systems** and **Introduction to Cloud Computing** course at IISc.
- Secured All India **Rank 273** in GATE 2015 (out of 115,425 students) with 99.76 percentile