

Md Rajib Hossen

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Summary

Software Engineer with 4+ years of research experience in Microservices, Kubernetes, Machine Learning, and Distributed Systems. I thrive in situations where the solutions to unprecedented problems are unknown.

Education

Ph.D. in Computer Science | The University of Texas at Arlington | Arlington, TX **Expected: May 2024**

GPA: 4.0/4.0 | Relevant Courses: Distributed Systems; Machine Learning; Cloud Computing; Advanced Algorithms

B.Sc. in Computer Science | Khulna University of Engineering & Technology | Bangladesh **May 2015**

GPA: 3.63/4.0 | Relevant Courses: Operating Systems; Computer Architectures; Machine Learning; Algorithms

Research and Work Experiences

Graduate Student Researcher | The University of Texas at Arlington | Arlington, TX **Aug 2018 – Cont.**

- Reduced total CPU usages of microservices by more than 33% compared to state-of-the-art resource managers
- Develop novel algorithm to automatically optimize resources of microservices that works on top of Kubernetes
- Developed bottleneck identification system with Prometheus, Grafana Dashboard by using container level metrics

Software Engineer | Goava Sales Intelligence AB | Dhaka, Bangladesh **Jan 2018 - July 2018**

- Increased customers of Goava 20% by developing tool for B2B sales where we introduced APIs for personalized recommendations, target group analysis, intelligence about companies, and smart filtering.

Software System Engineer | IPvision Soft Ltd | Dhaka, Bangladesh **Sep 2016 - Dec 2017**

- Collaborated with cross-functional teams responsible for various parts of cloud systems such as compute service, DNS service, Storage System to write automation scripts for deploying private cloud using OpenStack.
- Reduced cloud computing cost by 83% by hosting private cloud compared to commercial such as Amazon/Azure

Jr. Software Engineer | Workspace Infotech Ltd | Dhaka, Bangladesh **July 2015 - Aug 2016**

- Closely worked with teammates of front-end engineer, designer, Database Engineer to develop various applications
- Boosted client's business by streamlining apps deployment in clouds and maintained infrastructure backends

Projects

- **PEMA:** Developed a resource autoscaler on top of Kubernetes that autoscale resources of containers based on custom metrics and finds efficient resource allocations without requiring heavy application instrumentations.
- **Private Cloud:** Deployed OpenStack Private Cloud to provide in-house cloud computations, storages with clusters of Nagios, Ceph, load balancers, mongoDB, Apache Hadoop, Spark, and more.
- **Cloud Watch:** Design and Developed a cloud dashboard with simplified graphs for management using Django framework to provide monitoring for the private cluster using OpenStack, Ceph, GlusterFS, and custom API
- **Data Processing Pipeline:** Developed Data Analysis pipeline that provides business queries from Elasticsearch and Amazon S3, and utilized Lambda functions to apply Machine Learning to satisfy client requirements

Skills

- **Programming Languages:** Python, SQL, C++, Java, GO
- **Tools and Technologies:** Kubernetes, Docker, Prometheus, Linux, Kafka, Grafana, Redis, GCP, Flask, CI/CD

Select Publications

- **Md Rajib Hossen**, Mohammad Islam, Kishwar Ahmed. 2022. Practical Efficient Microservice Autoscaling with QoS Assurance. The 31st Symposium on High-Performance Parallel and Distributed Computing (HPDC 2022)
- **Md Rajib Hossen**, Mohammad Islam. 2022. Towards Efficient Microservices Management Through Opportunistic Resource Reduction. The 13th International Conference on Cloud Computing, GRIDs, and Virtualization