

# Md Rajib Hossen

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## SUMMARY

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Accomplished Software Engineer with a PhD in Computer Science and 5+ years of experience in building microservices, optimizing cloud infrastructures. Skilled in backend development, large-scale applications, and automation to deliver highly available and scalable systems, achieving a 33% improvement in resource utilization and a 60% cost reduction.

## EDUCATION

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

Thesis: Resource Optimization for interactive microservice and HPC applications in the cloud

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

GPA – 3.63/4.00 | Relevant Courses – Operating Systems, Database Systems, Computer Architecture

## TECHNICAL SKILLS

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**Programming Languages** - Python, Java, Bash, SQL, C++

**Tool and Technologies:** Linux, Kubernetes, Docker, Git, Github Actions, RabbitMQ, Terraform

**Databases:** MySQL, MongoDB, Redis

**Cloud Computing:** AWS (EC2, EKS, S3, VPC), OpenStack (Cinder, Nova, Horizon)

## PROFESSIONAL EXPERIENCES

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

- Reduce CPU utilization by 33% for microservices applications, outperforming native cluster autoscalers.
- Achieved faster root cause detection of bottleneck microservices compared to offline profiling, preserving QoS.
- Integrated application tracing, service and infrastructure monitoring and observability using Prometheus, Jaeger.
- **Online Shopping:** Created a microservice application of e-commerce utilizing Python, Docker, CI/CD workflows, and incorporating features like Asynchronous calling, Message Queueing, Database Designing, and Restful APIs.
- **PEMA:** Designed and invented a Kubernetes resource manager for microservice apps to optimize resources on-the-fly for preventing SLO and SLA violations, improving CPU, resulting in 33% less CPU than kubernetes autoscaler.
- **DeepTO:** Implemented an intelligent agent for offloading mobile tasks to offload mobile tasks in the mobile, edge or the cloud using Reinforcement Learning, resulting in 20% energy savings and 25% less execution time.

**Computing Scholar Intern | Lawrence Livermore National Lab | Livermore, CA** **May 2023 – Aug 2023**

- Assessed and optimized resource configuration for HPC workloads in AWS and GCP, decreasing costs by 83%.
- Achieved upto 6x faster completion times than traditional methods by developing a workload-driven autoscaling for HPC/ML application in the cloud that autoscale instances based on metrics e.g. queue, job time, instance up time.
- **Kubescaler:** Built tools using Python, AWS CDK, terraform to streamline AWS infrastructure deployment, integrate HPC frameworks into EKS clusters enabling dynamic execution, implement cluster and workload-driven autoscaling.

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

- Grew clients by 10% by building a RESTful API integrated with machine learning (recommendation) to streamlined B2B operations by connecting company needs with relevant offerings from other companies.
- **Machine Learning Software:** Applied ML to devise a model connecting company purchase needs with recent public news from Sweden's company's public data, facilitating B2B businesses in targeting other potential customers.

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

- Boosted on-prem OpenStack cluster deployment efficiency by 75% through Python, Ansible, and Bash automation.
- Improved monitoring dashboard with custom checks and alerts with Django enabling proactive maintenance.
- Achieved an 83% reduction in cloud computing costs compared to AWS, by implementing, automating OpenStack deployment with Python scripts, with Ceph Storage and ETL Integration.

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

- Accelerated mobile and web application development by working on both backend and database management (MySQL), delivering earlier than expected, and demonstrated versatile collaboration with front-end teams.