

Muhammad Abedin

Senior Backend Engineer | Search, Data Pipelines & Payments | Financial Reporting | Available for Fully Remote Roles

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About

Senior Software Engineer with 15+ years of experience building scalable backend systems across payments, search, data infrastructure, and telecommunications.

Most recently at Coursera, I led efforts to modernize and optimize the financial reporting pipeline for the Payments team, improving performance and reliability using Apache Spark. I partnered closely with infrastructure and finance teams, contributed to GDPR/SOC2 initiatives, managed quarterly SOX compliance, and integrated global payment providers including Stripe, Braintree, Razorpay, and eBanx.

Previously at BloomReach, I worked on large-scale commerce search systems—designing data pipelines, relevance ranking algorithms, and product ontology frameworks using Java, Hadoop, Lucene/Solr, and Cassandra.

My background also includes research in NLP, security, and software fault localization, as well as experience in teaching and telecom systems architecture.

I focus on building reliable distributed systems, optimizing data workflows, and delivering high-impact engineering solutions that bridge technical depth with business needs.

Experience

Senior Software Engineer

Coursera · Full-time

Apr 2017 - Oct 2025 · 8 yrs 7 mos

Mountain View, California · Remote

As a Backend Engineer in the Payments team at Coursera, I played a key role in ensuring the smooth operation and performance of our financial reporting pipeline. My responsibilities included:

- Pipeline Management
 - Overseeing daily operations, identifying areas for improvement, and implementing fixes to ensure seamless data processing.
- Pipeline Performance Optimization

- Focused on optimizing the overall performance of our financial reporting pipeline, working closely with the infrastructure team to identify and implement improvements that reduced pipeline run time and increased throughput.

I also took the lead in modernizing critical components of our pipeline using Apache Spark, streamlining data processing and analysis. Additionally:

- Compliance Expertise
 - Contributed to GDPR and SOC2 compliance efforts for our team, ensuring adherence to industry standards.
- Quarterly SOX Certification
 - Successfully managed quarterly SOX compliance certification for the payment stack, maintaining regulatory compliance.

Furthermore, I worked on:

- Feature Development
 - Developing and maintaining core payments product features, enhancing user experience and functionality.
- Integration and Partnerships
 - Collaborating with various payment processors (e.g., Braintree, Stripe, eBanx, Razorpay) to integrate their services with our platform, expanding payment options for learners.

In addition:

- Collaboration with Finance Team
 - Worked closely with the finance team to ensure seamless integration and accurate reporting.
- Escalated Issue Resolution
 - Resolved issues escalated from support teams, ensuring prompt and efficient resolution of learner payment-related concerns.
- Documentation Contribution
 - Helped document the entire financial reporting process, providing valuable input for the data engineering team's automation efforts.

Software Engineering Consultant

Onera, Inc.

Sep 2016 - Apr 2017 · 8 mos

Data pipeline internal analytics

Member of Technical Staff

BloomReach, Inc.

Jan 2011 - Aug 2016 · 5 yrs 8 mos

- Worked on BloomReach's core product BloomReach Commerce Organic Search
 - Wrote pipeline components for crawled webpage cleanup and rule based feature extraction

- Implemented BloomReach's proprietary anchor text to web page relevance scoring
- Designed and implemented feature selection for page to page relevance ranking
- Generated product ontology from page attributes and hierarchy, and used it for data enrichment
- Data pipeline infrastructure design, migration, maintenance, support and debugging activities
- Technology: java, hadoop, javascript, lucene, solr, cassandra, tomcat, bash

Teaching Assistant

University of Texas at Dallas
Sep 2010 - Jan 2011 · 5 mos

Assisted on teaching the CS 6360 Database Design course.

Intern

BloomReach, Inc.
Jun 2010 - Aug 2010 · 3 mos

- Designed and developed a streaming event generation system that mines web activity logs
 - Included interfaces to social media sites
 - Technology: J2EE, Facebook web service API

Research Assistant

The University of Texas at Dallas
Jan 2006 - Jun 2010 · 4 yrs 6 mos

Research Assistant at the Department of Computer Science, The University of Texas at Dallas, Richardson, TX, USA.

- Text Mining using Natural Language Processing
 - Cause identification of aviation safety incidents using semantic lexicon construction
 - Cause identifiers using annotator rationales to identify relevant portions of text
- Data Mining in Software Engineering
 - Software fault localization by Association Rule Mining from execution trace
- Network Security
 - Static analysis of firewall policy rules to detect and resolve anomalies
 - Network security metric based on vulnerability presence, history and exposure
 - Firewall rule regeneration from log files for validation and optimization

Manager, Technical Staff

Commlink LLC
Feb 2005 - Dec 2005 · 11 mos

- Responsible for the major project, a SIP based PSTN Switch
 - Participated in the architecture design
 - Designed a complete SIP-based PSTN Network using SIP, DNS, DHCP, RADIUS
 - Implemented and tested architecture with prototype board using MindSpeed's Comcerto 500 Series integrated VoIP processor <http://www.mindspeed.com>
 - Recruited people for the project and managed firmware development: Customization of telephony software, development of CLI, filesystem, device drivers, power and configuration management.

Lecturer

Bangladesh University of Engineering and Technology

Feb 2003 - Dec 2005 · 2 yrs 11 mos

- Lecturer at the Department of Computer Science, Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh.
 - Taught Senior level courses: Computer Graphics, Professionalism in Computing, Microprocessors

Software Engineer

Millennium Information Solution Ltd.

Jan 2003 - Jan 2005 · 2 yrs 1 mo

- Worked on core product “Ababil – Online Islami Banking Software”
 - Developed Transaction management and Interbank transfers
 - Technology: Microsoft C#.Net, Oracle 9i Release 2 and Crystal Reports

Education

The University of Texas at Dallas

PhD, Computer Science

2006 – 2011

Bangladesh University of Engineering and Technology

BSc Engg, Computer Science and Engineering

1997 – 2003

Technical Skills

Backend & Distributed Systems

Backend Engineering • Distributed Systems • Algorithms • Computer Science
 Java • Python • Scala • JavaScript • Spring Boot • Bash

Data Engineering & Infrastructure

Data Pipelines • Apache Spark • Hadoop • Cascading
Cassandra • Amazon Aurora Lucene / Solr

Payments & Financial Systems

Payments • Payment Gateways • Payments Integration
Financial Reporting • Financial Reporting Systems
Regulatory Compliance • SOX / GDPR / SOC2

Artificial Intelligence & Machine Learning

Artificial Intelligence • Machine Learning
Natural Language Processing (NLP) • Text Classification
Support Vector Machines (SVM)
Anthropic Claude • Ollama / CodeLlama

Data Science & Mining

Data Mining