

# Khondker Salman Sayeed

Software Engineer @ IQVIA

Website  Github  LinkedIn  Scholar 

## WORK EXPERIENCE

### Software Engineer, IQVIA

JUNE 2024 - PRESENT

- Working on the development and deployment of IQVIA's in-house Large Language Models for generating expert domain-specific insights.
- Increased a user-facing model's performance from 75% f1 to 90% f1 by moving from zero-shot to a RAG-based system.
- Working on maintaining the ML pipeline using Azure AI services, and AWS Bedrock.

### Software Engineer, ResTechAI

JUNE 2024 - AUGUST 2024 (Part-time)

- Leading the creation of an easy-to-use ML platform that delivers the LLM needs of the average professional.
- Designing a micro-service-based architecture using Docker Compose, and Kubernetes.
- Integrating tools like Llama, AnythingLLM, and Windmill to enable the creation of ML pipelines through a graphical UI.

### Undergraduate Research Assistant, CSE BUET NLP Lab

APRIL 2023 - JUNE 2024

- Prepared a benchmark illusion dataset that tests the visual understanding capabilities of VLMs. (To appear at **COLM'24**) ([arXiv](#))
- Researching multimodal deep learning and Vision Language Models (VLM) for undergraduate thesis.
- Curated a large dataset of newspaper articles, images, and summaries to improve the abstractive summarization task by including image data along with the article for VLMs.

### Machine Learning Intern, Northwest Power Generation Company

APRIL 2023 - MAY 2023

- Worked with the powerplant maintenance team to develop a Multi-Layer Perceptron and an LSTM model to analyze the powerplant performance level and failure prediction.
- Worked with the powerplant maintenance team to develop a Multi-Layer Perceptron and an LSTM model to analyze the powerplant performance level and failure prediction.

## EDUCATIONAL BACKGROUND

### Bachelor of Science in Computer Science and Engineering Bangladesh University of Engineering and Technology

APRIL 2019 - MAY 2024

- CGPA: 3.9/4.0
- University **Merit Scholarship** Recipient (4/6 Semesters)
- University **Dean's List** Scholarship Recipient (All Semesters)
- Member of IEEE Computer Society and Signal Processing Society

### Higher Secondary School Notre Dame College

JULY 2016 - SEPTEMBER 2018

- GPA: 5/5
- HSC Talent-pool scholarship recipient
- Ranked 114th on the Dhaka board

### Secondary School St. Joseph Higher Secondary School

JAN 2008 - MAY 2016

- GPA: 5/5
- SSC Talent-pool scholarship recipient
- Ranked 17th on the Dhaka board
- Executive Member of Scintilla Science Club

## CONTACT

[salkhon.github.io](mailto:salkhon.github.io)

SAU, Dhaka-1207, Bangladesh

[khondkersalman.sayeed@iqvia.com](mailto:khondkersalman.sayeed@iqvia.com)

[salkhon050@gmail.com](mailto:salkhon050@gmail.com)

## PROGRAMMING LANGUAGES

- Python
- C/C++
- Java
- Javascript/Typescript

## TECHNOLOGIES

- ExpressJS, React, NextJS
- Flask, FastAPI
- TailwindCSS, MUI
- MySQL, MongoDB, Redis
- Git
- Docker, Kubernetes
- Pytorch, Tensorflow

## RESEARCH

*IllusionVQA: A Challenging Optical Illusion Dataset for Vision Language Models*

- First author publication at COLM 2024.
- [\[arXiv\]](#) [\[webpage\]](#) [\[open review\]](#)

*Too Late to Train, Too Early To Use? A Study on Necessity and Viability of Low-Resource Bengali LLMs*

- Under review at CustomNLP4U@EMNLP 2024.
- [\[arXiv\]](#)

*Ophthalmic Biomarker Detection Using Ensembled Vision Transformers -- Winning Solution to IEEE SPS VIP Cup 2023*

- Champion solution presented at ICIP 2023.
- [\[arXiv\]](#) [\[conference\]](#)

## LANGUAGES

- English (Fluent)
- Bengali (Native)

## REFERENCES

- AKM Ashikur Rahman  
Professor at CSE, BUET  
[ashikur@cse.buet.ac.bd](mailto:ashikur@cse.buet.ac.bd)  
Relation: Advisor
- Rifat Shahriyar  
Professor at CSE, BUET  
[rifat@cse.buet.ac.bd](mailto:rifat@cse.buet.ac.bd)  
Relation: Thesis Supervisor

## AWARDS

### IEEE Upsilon Pi Epsilon Honor Society Award 2023

Winner

Awarded by IEEE Computer Society  
MARCH 2024

- Received award based on academic excellence and extracurricular activities in the field of computing
- Awarded to only 4 applicants internationally
- Received a \$1000 scholarship

### IEEE Video and Image Processing Cup 2023

Champion

Hosted by IEEE Signal Processing Society, Georgia Institute of Technology  
ICIP 2023, Kuala Lumpur, Malaysia  
AUGUST - OCTOBER 2023

- Task: Biomarker Prediction from retina OCT scans
- Model: MaxViT, EVA02-ViT, InceptionNet, ResNet
- Competition Page: [2023 IEEE SPS Video and Image Processing \(VIP\) Cup](#)
- Team Name: Synapse
- Paper: [Ophthalmic Biomarker Detection Using Ensembled Vision Transformers -- Winning Solution to IEEE SPS VIP Cup 2023](#)

### DL Sprint 2022

Champion

Hosted by CSE BUET, Bengali.AI and Optimizely  
JULY - SEPTEMBER 2022

- Task: Speech Transcription on the Bengali Common Voices Dataset
- Model: wav2vec2
- Kaggle: [DL Sprint - BUET CSE Fest 2022 | Kaggle](#)
- Team Name: YellowKing, Account: [Salman Khondker](#)
- Github: [DLSprint2022-Champion](#)
- Paper: [Applying wav2vec2 for Speech Recognition on BN-CV](#)

### EEE DAY Datathon 2023

1st Runners Up

Hosted by EEE BUET, Apurba Technologies Ltd.  
FEBRUARY - MARCH 2023

- Task: Grammatical Error Detection on an in-house dataset
- Model: T5 Transformer
- Kaggle: [Apurba presents Bhashabhrom: EEE DAY 2023 Datathon | Kaggle](#)
- Team Name: Schadenfreude, Account: [Salman Khondker](#)
- GitHub Link: [Bangla-GED](#)
- Paper: [Bangla Grammatical Error Detection Using T5 Transformer Model](#)

### Robi Datathon 3.0 2024

1st Runners Up

Hosted by Robi Axiata Ltd, Huawei  
APRIL - MAY 2024

- Task: Customer Purchase Behavior Prediction
- Model: Random Forest Regressor, XGBoost
- Kaggle Qualifier Round: [Problem 1](#), [Problem 2](#), [Problem 3](#)
- Team Name: YellowKing

### AI For Bangla 2023

Honorable Mention

Hosted by EBLICT, Bangladesh Computer Council  
DECEMBER 2022 - MARCH 2023

- Task: First word-level Bangladeshi Sign Language Dataset
- Model: 3DCNN, Image-RNN, STGCN
- Host Page: [EBLICT Facebook](#)
- Team Name: Silent Sentinels
- GitHub Link: [BdSL40](#)

## PROJECTS

### Ticketing — A microservices webapp that lets users buy and sell tickets

- Backend: NodeJS, Typescript, MongoDB, NATS Streaming. Consists of 6 independent services, coordinated by an event-based architecture.
- Frontend: NextJS, TailwindCSS
- Orchestration: Kubernetes

### Sub-C Compiler — A compiler for a subset of the C programming language

- Tools: Flex (Lexer), GNU Bison (Parser)
- Language: C, C++

### Mobile-Doc — A telemedicine web application

- Backend: FastAPI, MongoDB, Redis, BigQuery
- Frontend: React, MUI
- Deployment: Netlify
- Deployment: [Pokedoc](#)

### Suntech — An e-commerce web application

- Backend: Flask, OracleDB
- Frontend: Jinja2, HTML, CSS, VanillaJS

### Ray-Tracing — A rendering pipeline implementing ray tracing in OpenGL scenes

- Language: C++
- Algorithms: Phong Lighting Model, Recursive Reflection
- Tool: OpenGL

### Enhanced xv6 OS — Copy-On-Write and Memory Page-Replacement in the xv6 OS

- Language: C
- System Calls, Process Schedulers, Page Replacement

### twitt3r — A Twitter clone using the t3-stack

- Framework: NextJS
- Stack: T3 (Typescript, trpc, TailwindCSS)
- Persistence: PlanetScale, Prisma ORM
- Deployment: Vercel
- Deployment: [twitt3r](#)

### DocumentQA — A langchain LLM document chatbot

- Language: Python
- Libraries: langchain, OpenAI
- UI: Chainlit
- Database: ChromaDB Vector Database

### IllusionVQA — A Challenging Optical Illusion Dataset for Vision Language Models

- This work is a part of my undergraduate thesis
- Published at **COLM'24**
- Paper: [IllusionVQA: A Challenging Optical Illusion Dataset for Vision Language Models](#)
- Website: [IllusionVQA](#)