

# Ayan Antik Khan

Software Engineer & Researcher

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## RESEARCH INTERESTS

- Trustworthy NLP
- Low-Resource & Multilingual NLP
- Cognition & Reasoning in LLMs
- Application of NLP in Human-AI Interaction

## WORK EXPERIENCE

### IQVIA

Software Development Engineer

June 2023-present

## PUBLICATIONS

### An Empirical Study On The Characteristics Of Bias Upon Context Length Variation For Bangla

• Jayanta Sadhu\*, **Ayan Antik Khan\***, Abhik Bhattacharjee, Rifat Shahriyar

**Keywords:** Bias & Fairness, Low-Resource NLP

*Accepted at Findings of ACL 2024*

*Preprint | Proceedings*

### Multi-ToM: Evaluating Multilingual Theory of Mind Capabilities in Large Language Models

• Jayanta Sadhu\*, **Ayan Antik Khan\***, Sanju Basak, Noshin Nawal, Abhik Bhattacharjee, Rifat Shahriyar

**Keywords:** LLM Reasoning, Multilingual NLP

*Under review at COLING 2025*

*Preprint*

(\* Equal contribution)

## EDUCATION

### Bangladesh University of Engineering and Technology

B.Sc. in Computer Science and Engineering

2018-2023

CGPA: 3.85/4.00

### Notre Dame College

Higher Secondary School Certificate

2015-2017

GPA: 5.00/5.00

### St. Joseph Higher Secondary School

Secondary School Certificate

2007-2015

GPA: 5.00/5.00

## PROJECTS

### Bangla Named-Entity-Recognition

Amazon SageMaker | Jupyter Notebook

January 2023

- ML & DL Models trained for the Bangla Complex Named Entity recognition task
- Developed during the NLP Hackathon organized by BdOSN in collaboration with AWS

### Grammatical Error Detection and Correction for Bangla

Google Colab

April 2023

- Creation of synthetic dataset containing grammatical errors from famous Bangla newspapers
- Finetuning of Bangla Language Models (BanglaBERT, BanglaT5) to detect and correct grammatical errors

- Developed under the supervision of **Dr. Mohammed Eunus Ali** for CSE 472 Machine Learning Sessional course term project

### Vectorized Convolutional Neural Network from Scratch

Google Colab | Kaggle Notebook

March 2023

- A Convolutional Neural Network model from Scratch without any external libraries
- Trained on Bengali Handwritten Digits from the NumtaDB Dataset.
- Developed as the final assignment for CSE 472 Machine Learning Sessional course

### Notabene

React.js | Django REST Framework | PostgreSQL

June '22 - September '22

- A browser based knowledge management tool
- Based on taking notes & easy highlighting of any article on the web.

### TCP Faster Recovery

ns-3

January '22 - February '22

- An ns3 based implementation of a TCP Congestion Control algorithm.

\*\*More on [Github](#)

## TECHNICAL SKILLS

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**Languages:** Python, C++, Java, Typescript, HTML, CSS, SQL

**Machine Learning:** PyTorch, Scikit-Learn, Tensorflow, wandb, pandas, numpy

**Libraries:** ReactJS, ns3

**Frameworks:** Django, Angular, Bootstrap

**DBMS:** PostgreSQL, Oracle

**Misc:** Git, Shell Script

## NOTABLE ACADEMIC COURSES

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Machine Learning, Artificial Intelligence, Simulation and Modelling, Bioinformatics, High Performance Database Systems, Operating Systems, Computer Security, Computer Networking, Computer Graphics, Compiler Design, Software Developement, Microprocessors and Microcontrollers, Information System Design, Object Oriented Programming

## POSITIONS OF RESPONSIBILITY

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**Organizer,** BUET CSE Festival

2022

**Executive Member,** Scintilla Science Club

2013-2015

## AWARDS & HONOURS

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- Receptient of **IQVIA Gold Impact Award** for contributions to the team
- Receptient of **RISE Research Grant Award** for undergraduate thesis.
- Receptient of **Dean's List** awards (6 out of 7 graded terms) & **University scholarships** for academic excellence.
- Receptient of **Scholarships** in secondary and higher secondary level.

## CERTIFICATIONS

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### Structured Machine Learning Projects [↗](#)

Coursera | Deeplearning.ai

*Issued: August '20*

### Deep Learning Specialization [↗](#)

Coursera | Deeplearning.ai

*Issued: August '20*

- Neural Networks and Deep Learning [↗](#)
- Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization [↗](#)
- Convolutional Neural Networks [↗](#)
- Sequence Models [↗](#)