Ayan Antik Khan

Software Engineer & Researcher
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Research Interests: *Natural Language Processing, Bias & Fairness in Language Models, LLMs, Application of NLP in HCI*

Work Experience

IQVIA *June 2023-present*
Software Development Engineer

Research & 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: Natural Language Processing, Bias & Fairness, Low-Resource
  Accepted for poster presentation 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: Natural Language Processing, LLM, Multilingual NLP
  Under review

*Equal Contribution

Education

Bangladesh University of Engineering and Technology *2018-2023*
B.Sc. in Computer Science and Engineering CGPA: 3.85 (out of 4)

Notre Dame College *2015-2017*
Higher Secondary School Certificate GPA: 5.00

St. Joseph Higher Secondary School *2007-2015*
Secondary School Certificate GPA: 5.00

Projects

Bangla Named-Entity-Recognition
Amazon SageMaker | Jupyter Notebook *January 2023*

- Machine Learning & Deep Learning 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 dataset containing grammatical errors from famous Bangla newspapers
- Finetuning of Bangla Language Models (BanglaBERT, BanglaT5) to detect and correct grammatical errors
- Developed as the term project for CSE 472 Machine Learning Sessional course

Vetorized Convolutional Neural Network from Scratch
Google Colab | Kaggle Notebook *March 2023*

- A Convolutional Neural Network model from Scratch without any external libraries
- The CNN was used to recognize 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.

QuizUp
Django | Bootstrap | Oracle *July '20 - December '20*

- A website implementation of the popular QuizUp mobile app.

More on **Github

Technical Skills

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

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

Organizer, BUET CSE Festival *2022*

Executive Member, Scintilla Science Club *2013-2015*

Awards & Honours

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

Certifications

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