

# Afroza Nowshin

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## RESEARCH INTERESTS EDUCATION

Human-Computer Interaction, Social Computing, Artificial Intelligence, Data Science, Machine Learning

### Bangladesh University of Engineering and Technology,

- B.Sc. in Computer Science & Engineering Oct 2018
  - CGPA: 2.97 / 4.00

### Standardized Test Scores

- IELTS - 7.0 (R-8.5, S-6.5, L-6.0, W-7.5)
- GRE - 302 ( V-153, Q-149, AWA-4.0)

## RESEARCH EXPERIENCE

- **Independent Researcher** 2023-
  - Conducted and supervised semi-structured interviews among 20 Bangladeshi NLP/ML practitioners under Brac University Associate Professor S.M Taiabul Haque and Assistant Professor Farig Yousuf Sadeque.
  - Working on understanding the DevOps practices in Bangladesh under Auburn University Assistant Professor Ashfaque Rahman and Brac University Associate Professor S.M Taiabul Haque.
  - Conducted literature review on Decoloniality in content moderation of online spaces under the supervision of UIUC Assistant Professor Sharifa Sultana Ela.
  - Reviewing HCI literature in UoFT-based research group Third Space, under the supervision of Schwartz Reisman Institute Fellow Dr. Syed Ishtiaque Ahmed.
- **Student Researcher** (Undergraduate Thesis)
  - **Content Caching in Named Data Networking** - Analyzed probabilistic content caching policy in named data networking through qualitative analysis. 2017- 2018

## PUBLICATIONS

### WORKSHOP PAPERS

- [1] [Afroza Nowshin](#) "What is H.P. Lovecraft's Cat's Name: Syntactic Censoring in LLM Applications" *Proceedings of the Conversational User Interface Workshop of CHI-2024, To Appear*, Mar 2024.
- [2] [Afroza Nowshin](#) and Meem Arafat Manab, "Return of the Headless King: Panopticon, Surveillance, and Machine Intelligence," *Proceedings of the Conversational User Interface Workshop of CHI-2024, To Appear*, Mar 2024.

## TEACHING EXPERIENCE

- Instructor of **Python for Kids** course at **Songjog | Connecting People** Dec 2021-
  - Designed the course and prepared materials for teaching
  - Preparing questions and evaluating exam scripts

## PROFESSIONAL EXPERIENCE

- Volunteer Data Scientist at Omdena Hyderabad India Local Chapter Project Feb 2024 - Mar 2024
- Senior Software Engineer at BacBon Ltd. Dec 2023 -
- Software Engineer at ADN Dignet Ltd. Nov 2022 - Nov 2023
- Volunteer Data Scientist at Omdena Port Harcourt Local Chapter Project. Feb 2023-Aug 2023
- Software Engineer at HOLO Tech Ltd. (Contract) Mar 2022-Oct 2022
- Software Engineer at mPower Social Enterprises Ltd. Feb 2020-Jun 2020
- Software Engineer at Misfit Technologies Mar 2019-Dec 2019
- Intern at Misfit Technologies Nov 2018-Feb 2019

## PROFESSIONAL PROJECTS

- **Video Transcoder** - Developed a video transcoder API using FastAPI to dynamically adjust video resolution (360p, 480p, 720p, or 1080p) based on available bandwidth.
- **Omdena Hyderabad India Project** - Co-led model development for a mental health solution using LLM-based DPO approach.

- **Omdena Port Harcourt Local Chapter Project** - Contributed to Python-based projects at Omdena PHC, focusing on data preprocessing tasks like analyzing and merging UAPD and Tongzheng image datasets.
- **SmartBees** - Market research tool enabling clients to create surveys and collect real-time data. Utilized Python, Pandas, and Numpy for data analysis.
  - Analyzed data from MySQL and DynamoDB using pandas, numpy, FuzzyWuzzy, Bag of Words, and Count Vectorizer.
  - Prepared reports for Uber & Unilever based on insights.
- **Holo** - Front-end developer for an emerging ride-sharing application in Bangladesh.
  - Created and deployed the website using React JS: [Holo](#).
  - Developed dashboards for app admin and BRTA to track users, rides, and locations, implementing JWT authentication with React JS.
  - Implemented real-time map-based tracking system using React-Leaflet library for admins.
- **Bikri** - Inventory, orders, and customer management tool for F-commerce. Worked with HTML, CSS, JavaScript, and React JS.
  - Implemented mobile-responsive order creation from user-sent product images.
  - Created mobile view for product inventory and improved product display for ordering.
  - Made order creation page and change control mobile responsive.
  - Added option to download order list as CSV file for admins.
- **Alice** - Social media-based CRM tool. Worked with HTML, CSS, JavaScript, React JS, and JQuery.
  - Created action control for managing conversations and exporting data.
  - Developed visual analytics dashboard using React JS and API data.
  - Implemented user input system for appointment booking with JQuery.

## PERSONAL PROJECTS

### UNDERGRADUATE PROJECTS

- I sometimes write about web development and ML pipelines, which can be found here - [My blog](#).
- ‘LED LightSaber’ (Hardware, Arduino Platform)
  - A ‘Star Wars’ toy project made by Arduino Nano, IMU sensor, etc (Digital System Design Project).
- ‘Nachos Extension’ (C++)
  - Multiprogramming, Priority Scheduling, demand paged virtual memory, System Call Programming for Linux Kernel
- ‘Fastest Finger First Quiz System with Answer’ (Hardware, AVR Microcontroller, Atmel Studio 7)
  - An Atmega16-based circuit that detects which player has pressed the button first and, after that, checks the player’s answer and adds score (Microprocessors, Microcontrollers & Embedded Systems Project).
- ‘Tic-Tac-Toe Game’ (Android, Java)
  - Android game, where two players can connect via Bluetooth or Wi-Fi (Java Project).
- ‘Pac- man Game’ (C, iGraphics)
  - Desktop version of classic ‘Pac-man’ game (C Project).

## SKILLS

- **Programming Languages:** JavaScript, HTML, CSS, C, C++, Java, Python, R, PL/SQL, Lex-Yacc, 80x86 Assembly.
- **Library:** React JS, Pandas, Numpy, Spacy, Scikit-learn, Tensorflow, Beautiful Soup
- **Frameworks:** Fast API, React Native, Bootstrap, Flask, Django, LangChain, LlamaIndex
- **Visualization Tools:** Seaborn, Matplotlib, Tableau, HighCharts
- **Specialization Tools:** Generative AI, Docker
- **Modeling Tools:** Creately, Pencil, Moqups, Draw.io, Balsamiq.
- **Database:** Oracle, MySQL, SQLite, DynamoDB, PostgreSQL, Neo4j, MongoDB
- **Tools and Productivity Software:** Code Blocks, IntelliJ, Android Studio, Expo, Proteus, Webstorm, Visual Studio Code, PyCharm, Trello,  $\LaTeX$ , Microsoft Office Suite.
- **Version Control System:** Git, Bitbucket.
- **Embedded Systems:** AVR Microcontroller, Arduino platform.
- **Graphics:** iGraphics (Graphics functionality based on Open GL), OpenGL, Java FX.
- **Network Simulator Software:** NS-2

## AWARDS

- I achieved Google’s certification on Data Analytics-[link](#) 2023
- My team project Help! was among the top 10 [finalists](#) in UNDP WDI Hackathon. 2021

## VOLUNTEER ACTIVITIES

- Editor, Dimik Magazine, CSE Festival BUET, 2018
- Member, BWCSE (Bangladeshi Women in Computer Science and Engineering) club.
- Volunteer, Songjog | Connecting People