Afroza Nowshin

- **Email:** nowshin.afroza217@gmail.com || Afroza.Nowshin@rockets.utoledo.edu
- **Web:** https://afroza-nowshin.vercel.app | LinkedIn | GitHub | Google Scholar

RESEARCH INTERESTS

Internet of Things, Human-Computer Interaction, Data Science, Machine Learning, Deep Learning

EDUCATION

The University of Toledo

- 2nd year PhD student in EECS, College of Engineering
- Supervisor - Dr. Samia Tasnim — Aug 2024-
  - CGPA: 3.799/4.00

Bangladesh University of Engineering and Technology

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

Standardized Test Scores

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

RESEARCH EXPERIENCE

- **Graduate Research Assistant** at Reliable and Intelligent Mobile Networks Lab (RIM) — Aug 2024-
- **Independent Researcher** — 2023-
  - Reviewed CHI-2023 Late Breaking Work Papers, CSCW-2024 unpublished Posters, NSyss-24 papers, Elsevier and MDPI unpublished journal papers.
  - Reviewed 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

Conference Paper

- Afroza Nowshin, Sumaiya Tasnim, Samia Tasnim, "Physics-Informed Data Denoising for Enhanced IoT-based Water Quality Monitoring," *IEEE COMPSAC 2025*. 10.1109/COMPSAC65507.2025.00185

Posters

- Afroza Nowshin, Shammi Akhter Shiba, Pratyasha Saha, Farig Sadeque, S M Taiabul Haque, "Understanding the Perceptions and Practices of the Machine Learning Professionals in Bangladesh," *CSCW 2024*. 10.1145/3678884.3681920

Workshop Papers

- 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*.
- Meem Arafat Manab, Afroza Nowshin, "Return of the Headless King: Panopticon, Surveillance, and Machine Intelligence," *Proceedings of the Conversational User Interface Workshop of CHI-2024*.

TEACHING EXPERIENCE

- Teaching Python programming and data science using MicroBit in EECS-3650. — Dec 2024-
- Taught basics of computing to young girls (ages 5 to 8th grade) in the "Computer Scientist for a Day" event celebrating International Women's Day 2025. — Mar 2025-
- Instructor of the **Python for Kids** course at **Songjog | Connecting People** — Dec 2021-
- Instructor of the **Data Analysis with R** online course. — Mar 2024-

PROFESSIONAL EXPERIENCE

- Volunteer Data Scientist at Omdena Hyderabad India Local Chapter Project — Feb 2024 - Mar 2024
- Senior Software Engineer at BacBon Ltd. — Dec 2023 - Jul 2024
- Software Engineer at ADN Diginet 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 Hyderabard 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

- I sometimes write about web development and ML pipelines, which can be found here - My blog.

UNDERGRADUATE PROJECTS

- '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

VOLUNTEER ACTIVITIES

- General Secretary and Event Coordinator, ACM Women's Chapter, The University of Toledo EECS.
- Member of the BWCSE club (Bangladeshi Women in Computer Science and Engineering).