Khandaker Abrar Nadib

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Research Interests

My research interest comprises Social Computing, Human-Computer Interaction (HCI), Human-Centered Data Science, and Data Visualization. Specifically, I am interested in conducting research focusing on understanding and improving user experiences in digital environments.

Publications

Interaction Based Credibility Analysis of News on Facebook Using Machine Learning Methodologies

- Published in 16th International Conference on Signal Image Technology & Internet based Systems (IEEE SITIS-2022).
- **Method:** Predictive Modeling Study; **Analysis:** Exploratory Data Analysis, Machine Learning.

Research Experience

News Credibility Analysis on Facebook using User Interactions 2021 - 2022

Supervisors: Dr. Sadia Sharmin (BUET)

- The goal was to propose a more efficient solution to determine news authenticity than existing methods.
- We developed a method of detecting fake news using interaction metrics on Facebook.
- Employed Machine Learning methodologies to classify public Facebook posts based on authenticity.
- The proposed method outperforms existing content-based and NLP-based solutions and is also language-independent.
- **Tech**: scikit-learn, pandas, matplotlib.

Education

University of Utah Salt Lake City, Utah

Doctor of Philosophy in Computer Science *August 2024 – Present*

Bangladesh University of Engineering and Technology (BUET) Dhaka, Bangladesh

Bachelor of Science in Computer Science and Engineering *Feb 2017 – May,2022*

- **CGPA: 3.50/4.00** (Last two semesters: **3.82**)
- **Major CGPA: 3.68/4.00**

Standardized Test Scores

TOEFL

Speaking: 29, Reading: 29, Listening: 28, Writing: 28 ***114***

GRE

Quant: 162, Verbal: 153, AWA: 4.5 ***319.5***

Work Experience

Graduate Research Fellow August 2024 – Present

University of Utah, Salt Lake City

Visualization Design Lab, KORE Lab

Software Engineer May 2022 – July 2024

Optimizely, Dhaka

Digital Asset Management (DAM) *November 2022 – July 2024*

- Currently working in the Digital Asset Management (similar to Google Drive) team.
- Implemented Brand Template feature, which lets users create a Template for their brand and define Placeholders that other collaborators can edit. I also implemented Download, Export, Cloning, and Task integration features for Brand Templates.
- DAM Collections are a group of user-defined Assets, including Asset folders. I implemented Searching, Filtering, and Navigation within DAM Collection folders.
- Implemented various asset-specific features like meta information, asset relations, and bulk operations, which enhanced user ability to handle assets.
- Implemented breadcrumbs in the DAM Library to make the navigation more fluid for the users.
- Implemented various user activity tracking for analytics to gain useful insights.
- Made improvements to several backend and UI components in terms of accessibility, performance, and code quality.
- Upgraded and integrated GPT-3.5-turbo model for AI content generation.
- Handled user roles and privileges for various features.
- **Technologies:** Python, Flask, JavaScript, TypeScript, React.js, MySQL, MongoDB, Alembic, Celery, Elasticsearch

Asset Renditions (AR) *May 2022 – October 2022*

- Worked on implementing and maintaining a feature Asset Rendition. This feature allows users to pre-define "Rendition types", using which whenever users upload a new asset, new "Renditions" of that asset are automatically generated in the background. Example use-case: a user may define two image rendition types- 1. Facebook- 1080*720 crop and Instagram- 720*720 crop. Then whenever the user uploads an image asset, two cropped images will automatically be generated with the given specifications.
- Implemented logging schemes by combining multiple services to enable users and developers to diagnose and debug errors.
- Built three services to generate asset renditions using the given specifications including image and video generators.
- Implemented stateless generators to scale horizontally and integrated asynchronous messaging for decoupling and scaling, for efficiency.
- Integrated the Rendition Service with the local development environment for developers.
- **Technologies:** Python, FastAPI, MySQL, PostgreSQL, Docker, Kubernetes, Message Queue

Projects

Online Art Gallery | *Library: React.js, Node.js, Express.js, Mongoose, Database MongoDB* 2021

- Designed an e-commerce platform for an Art Gallery.
- Virtual exhibitions simulated using virtual rooms.

AES (Advanced Encryption Standard) | *Language: Python, Libraries: numpy* 2021

- Encryption and Decryption algorithm for 128-bit key size implemented using Python and numpy.

Rendering scenes using Ray Tracing | *Language: C, Libraries: OpenGL* 2022

- An interactive environment designed in C using OpenGL.
- Lighting for the environment implemented using the Phong Reflection Model

Compiler for a Subset of C Language | *Language: C Libraries: Flex, Bison, 8086* 2020

- Compiler with parser written in C.

- Compiles to 8086 machine code.

Live Cricket Scoreboard | *Libraries: JavaFX, Scenebuilder* 2020

- A headless app that displays live scores in tabular format.
- Basic files used for storage.

Backend of an E-commerce Platform | *Language: PHP, Database: PostgreSQL* 2021

- Designed the backend of a buy-sell platform.
- Showcased complex database queries.

Awards and Honors

Optimizely SPOT Award October 2023
Nominated by teammates and manager.

- Awarded in recognition of excellent performance and contribution.

Optimizely SPOT Award July 2023
Nominated by teammates and manager.

- Awarded in recognition of resolving challenging problems and performance.

Board Merit Scholarship- HSC 2016
Education board scholarship

- Ranked 6th(male) in Dhaka board.

Board Merit Scholarship- SSC 2014
Education board scholarship

Technical Skills

Research Methods: Data Scraping, Surveying, Interviewing
Languages: JavaScript, Python, Java, C/C++, SQL, PL/SQL
Database: MySQL, Oracle, MongoDB, PostgreSQL
Frameworks: Flask, React.js, Node.JS, Typescript, FastAPI, BootStrap
Tools/Software: Git, TensorFlow, Docker, PyCharm, IntelliJ, CodeBlocks, Visual Studio Code, Oracle SQL Developer, Jupyter Notebook, Wireshark
Libraries: Pandas, NumPy, Keras, Matplotlib, OpenCV, OpenGL
Scripting/Markup/Serialization: Bash, TCL, dLateX, YAML, HTML, JSON;

Volunteering and Leadership Experiences

Vice President December 2021- May 2022
BUET Computer Club

- In charge of organizing and running university events under the club's banner.

Vice President February 2021- April 2022
BUET Dance Club

- In charge of organizing events and workshops on campus.

References

Dr. Sadia Sharmin,Associate Professor
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Md. Shariful Islam Bhuyan,Assistant Professor
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