Soham Khisa

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Education

– **Bangladesh University of Engineering and Technology (BUET)** 2018 - 2023
BSc in Computer Science and Engineering

– **Dhaka Residential Model College** 2017
Higher Secondary School Certificate (HSC)

– **Dhaka Residential Model College** 2015
Secondary School Certificate (SSC)

Professional Experience

Remote Research Assistant September 2023 - Present
Bowie State University
Currently working under the supervision of Dr. Avijoy Chakma. My research focus is primarily on applying and developing machine-learning approaches for smart environments. My job responsibilities:

- Conducting literature reviews
- Analyzing data
- Assisting with research experiments
- Attending research meetings and discussions
- Contributing to research publications

Research Interest

Machine Learning, Computer Vision, Human Activity Recognition, Domain Adaptation, Natural Language Processing, Artificial Intelligence

Research Experience

- **UNDERGRADUATE THESIS**

  I have completed my undergraduate research in Knowledge Graph under Dr. Muhammad Masroor Ali, Professor, Dept. of CSE, BUET. My research topic is **Knowledge Graph-Based Categorization of Newspaper Articles in a Newspaper Corpus**. In this work, we measure the semantic relationship between the texts in the articles and the topics with the help of a knowledge graph. The pdf copy of the work can be found here.

- **ONGOING RESEARCH**

  – Enhancing the multi-source domain adaptation framework for activity recognition in wearable devices.
  Supervisor: Prof. Avijoy Chakma

  – On neural machine translation of low resource language: Chakma.
  Supervisor: Prof. Tahmid Hasan

Projects

- **CNN From Scratch**

Deep Learning Project
  - **Libraries:** opencv, matplotlib, tqdm, pandas, pickle, scipy
  - **Architecture:** Convolutional Neural Network (LeNet)
  - **Description** The objective was to develop CNN-LeNet architecture from scratch (Using a very limited number of libraries). The codes can be found in this GitHub repository.

- **Retinal Disease Classification**
  Deep Learning Project
  - **Frameworks & Libraries:** numpy, matplotlib, pandas, PyTorch
  - **Architecture:** Restricted Boltzmann Machine, Convolutional Neural Network (AlexNet)
  - **Description:** The project's objective is to use retinal images to recognize and classify various retinal illnesses, including age-related macular degeneration and diabetic retinopathy. Codes and further details about this project can be found in this repository.

- **Auc-dais**
  Software Development Project
  - **Frameworks & DBMS:** Spring Boot, React, Bootstrap, PostgresSQL
  - **Description:** This project is an online auction platform system that allows users to list items for auction, and bidders can browse and select the items they wish to bid on. The front end of the project can be found on this GitHub repository. The back end is this repository. A video demonstration of this project is available here.

- **Cricbuzz**
  Database Project
  - **Frameworks & DBMS:** JavaFX, Oracle Database
  - **Description:** This is a Java based desktop application inspired by cricbuzz. This application is usable for updating live cricket scores. Click here to see the source code of our project. Demonstration of this project is available here.

- **Scientific-Calculator**
  Microprocessors, Microcontrollers, and Embedded Systems
  - **Tools & Technologies:** C, Atmel Studio, Proteus, ATmega32, Arduino
  - **Description:** As the name suggests the project is on creating a scientific calculator on proteus and writing a program on Atmel Studio to do the necessary calculations. The project is available in Github. The video demonstration can be found here.

- **C-subset Compiler**
  Compiler Design
  - **Tools & Technology:** C, Flex, Bison
  - **Operations:** arithmetic operations, functions, recursion, print, comment, loops, variables
  - **Description:** This project is on the development of a compiler that is a subset of the C programming language. The project is available in Github.

Skills

- **Programming Languages:** Python, Java, C, C++, C#, Assembly
- **Machine Learning Frameworks/Libraries:** PyTorch, TensorFlow, NumPy, scikit-learn, Pandas, Keras
- **Database Management:** SQL (Oracle, Postgres, MySQL, SQLite)

- **Software Development:** Django, Spring Boot, React, JavaFX, Bootstrap
- **Version Control:** Git, GitHub
- **Operating Systems:** Linux, Windows, Mac
- **Scripting:** LaTeX, HTML, Shell Script(Linux)

Achievements

- **Hackathons**
  - MIST Inter-university ICT Innovation Fest, 2021 — Finalist
  - HackNSU season 3, 2021 — Finalist
- **Scolarships**
  - Technical Scholarship Complimentary scholarship for regular engineering students, Bangladesh Government, 2018-2023
  - Chittagong Hill Tracts Development Board scholarship, 2021
  - Rangamati Hill District Council scholarship, 2020
- **Certification**
  - **Deep Learning Specialization** by DeepLearning.AI on Coursera.
    - Completion date: October 30, 2020
    - Certificate
  - **Machine Learning Foundations: A Case Study Approach** by the University of Washington on Coursera.
    - Completion date: May 29, 2020
    - Certificate
  - **Database Management Essentials** by the University of Colorado System on Coursera.
    - Completion date: June 24, 2020
    - Certificate

Co-curricular Activities

- Active Member of DRMC Science Club — 2015 - 2017
- Member of Entrepreneurship Development Club, BUET — 2018 - 2019

- **Speedcubing Contests**
  - 3×3 Rubik's cube competition, Dhaka Spring Open 2018, **Semifinalist**
  - Rubik's cube competition, DRMC 9th National Science Carnival-2016, **2nd position**
  - Rubik's cube competition, Holy Cross 13th Inter College Science Festival 2015, **2nd position**
  - Rubik's cube competition, SAGC Science Festival 2015, **3rd position**