Anan **Ghosh**

Graduate Student

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Career Objective

Graduate student at University of Calgary, pursing Master of Engineering in Geomatics Engineering. Possessing a solid foundation with a Bachelor's degree in Computer Science and Engineering, my academic journey has equipped me with a profound understanding of Geospatial intelligence systems. With a fervent enthusiasm for integrating cutting-edge technologies, I specialize in the application of machine learning algorithms and excel in data analysis. Focused on leveraging my expertise to contribute meaningfully to the field of Geomatics Engineering. Committed to continuous improvement propels the exploration of geospatial domains, enabling the delivery of superior solutions and substantial contributions to the advancement of technology.

Education

University of Calgary — *Calgary, Canada*

Master of Engineering in Geomatics Engineering — *September 2023 - Present*

North South University(NSU) — *Dhaka, Bangladesh*

Bachelor of science in computer science and engineering — *Jan 2018 - May 2022*

Skills

Programming Languages	Python, Java, C++, C
Libraries and Frameworks	ArcGIS, QGis, Keras, Tensorflow, Pytorch, Django, Pandas, Matplotlib, OpenCV, Scikit learn, Numpy
Front-end	HTML5, CSS3
Database	MySQL, Postgresql Firebase
Operating System	Linux, Windows
Version Control and Tools	Git, GitHub, Bitbucket
Presentation and Tools	Google Data Studio, Microsoft PowerPoint, Microsoft Word, Canva
Communications	Slack, Trello, Jira, LaTeX, Collaborative Teamwork and Leadership, Delegating Work Assignments

Professional Experience

LegoIO LLC — *Rockville, Maryland, United States*

Junior Developer- Internship — *March 2023 - July 2023*

- Create and design an efficient system to deliver user-friendly data
- Scraping information from the web and manipulating the data to be used in the system
- Transform and refine raw data to ensure its effectiveness in the system
- Optimize and pre-process data according to the system's requirements.
- Collaborate in the CI/CD pipeline to ensure smooth system development and deployment

Publications

"Heartisan: An Incremental Learning Based Arrhythmia Detection and Data Collection System."

DOI: 10.1109/CBMS58004.2023.00204

- I. R. Nijhum, **A. Ghosh**, H. Hassan, M. Y. Hossain, and T. Rahman. In Proceedings of the IEEE 36th International Symposium on Computer Based Medical Systems (CBMS 2023), L'Aquila, Italy, June 22-24, 2023.

Academic Research

Training Pruned Language Model

CSE499 - Undergraduate Dissertation *Sep. 2021 - April 2022*

- **Used Language, Methods and Key index:** Python, Web Scrapping, Data pre-processing, Model-Fine tuning, Iterative Pattern Exploiting Training, Pruning(Lottery Ticket Hypothesis), Custom dataset, Transformer Models, Bangla language processing

Emotional Reactions and Family Resilience During COVID-19 Lockdown Period among Bangladeshi Families

CSE445 - Machine Learning Research Project *May 2021 - Sep. 2021*

- **Used Language, Methods and Key index:** Python, Data pre-processing, Custom dataset, Sci-kit learn, Data engineering, Data analysis, Classification

Image synthesis with Normalizing Flows

CSE465 - Pattern Recognition and Neural Network Research Project *May 2021 - Sep. 2021*

- **Used Language, Methods and Key index:** Python, Data prepossessing, Image processing, Custom dataset, Normalizing flows, Classification model, Image Synthesis

Notable Projects

Object-Detection-and-Track-a-Baseball

ENG0 659 - Digital Imaging and Applications *Jan. 2024 - Feb 2024*

- This study presents a method to identify and track the movement of baseball pitches using two video clips. Utilizing a MATLAB algorithm, object detection incorporates histogram analysis for defining the ball's color edge and background subtraction to eliminate non-matching pixels. Stationary objects are excluded to focus on moving object detection. The algorithm establishes an area of interest (AOI) to effectively track the ball's position and trajectory. Overcoming the challenge of a multi-colored background involves precise threshold adjustments to accurately detect the small ball based on its shape, size, and color.

A-Versatile-Image-Pre-processing-Application-for-Geographic-Information-Systems

ENGG 680 - Introduction to Digital Engineering *Sep. 2023 - Dec 2023*

- The integration of machine learning, computer vision, and GIS has highlighted the significance of image pre-processing in enhancing and manipulating images. A robust image processing tool is essential, especially for GIS applications that extract crucial information from maps, aerial photos, or satellite images. This tool encompasses resizing, rotating, flipping, image sharpening, blurring, noise reduction, and advanced techniques like Edge Detection.

Janao

CSE323 - Operating Systems Design *May 2020 - Aug. 2020*

- The Flutter-based application facilitates user-reported crime submissions to a secure Firebase database. Users can seamlessly report crimes, providing location coordinates and utilizing device cameras for additional documentation.

Document Management System

CSE327 - Software Engineering Project *Jan. 2021 - April 2021*

- Utilizing the "Python-based Django" framework, the primary objective of this project is to transform the records and data of the Department of Finance into a digital format. Following digitization, the data will be stored in a location determined by the department through an "API" , and linkage will be established using a straightforward document management system. This system, implemented through "Object-oriented programming", enables efficient search and retrieval processes for enhanced accessibility.

Airline Management

CSE311 - Database Systems Project *Sep. 2019 - Dec. 2019*

- As a component of this project, a comprehensive database was developed by designing a "Schema", which included a "UML diagram", utilizing "MySQL" for a commercial airline. This database encompasses detailed information about staff, their respective positions, and personal details. Additionally, it incorporates data on various types of planes, itineraries, and routes, each tailored to different classes. The availability of this data streamlines the management of an airline company, providing a robust foundation for operational efficiency.