# Postgraduate Seminar Series

Venue: Graduate Seminar Room
Date & Time: Jan 31, 2026 at 2:30 PM

Speaker Information

Sarfaraz Newaz (Std No. 1018054002) is a full-time Ph.D. student in the Department of CSE, BUET. He completed both his undergraduate and M.Sc. studies from Bangladesh University of Engineering and Technology (BUET) in 2009 and 2018, respectively. His research interest lies in the fields of Machine Learning and Deep Learning. He is currently doing his Ph.D. thesis under the supervision of Dr. A. B. M. Alim Al Islam. He will be speaking about his ongoing research in this talk.
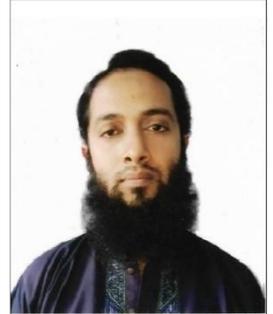
A Ubiquitous Method for Predicting Underground Petroleum Deposits based on Satellite Data

The method of finding new petroleum deposits beneath the earth's surface is always challenging for having low accuracy while simultaneously being highly expensive. As a remedy, this paper presents a novel way to predict the locations of petroleum deposits. Here, we focus on a region of the Middle East, Iraq to be specific, and conduct a detailed study on predicting locations of petroleum deposits there based on our proposed method. To do so, we develop a new method of predicting the location of a new petroleum deposit based on publicly available data sensed by an open satellite named Gravity Recovery and Climate Experiment (GRACE). Using GRACE data, we calculate the gravity gradient tensor of the earth over the region of Iraq and its surroundings. We use this calculated data to predict the locations of prospective petroleum deposits over the region of Iraq. In the process of our study for making the predictions, we leverage machine learning, graph-based analysis, and our newly-proposed OR-nAND method altogether. Our incremental improvement in the proposed methodologies enables us to predict 25 out of 26 existing petroleum deposits within the area under our study. Additionally, our method shows some prospective petroleum deposits that need to be explored physically in the future. It is worth mentioning that, as our study presents a generalized approach (demonstrated through investigating multiple datasets), we can apply it anywhere in the world beyond the area focused on in this study as an experimental case.