Postgraduate Seminar Series

Venue: Graduate Seminar Room
Date & Time: July 19, 2025 at 3:30 PM

Speaker Information

Tasmiah Tamzid Anannya (Std No. 04123054002) is a full time Ph.D student in the department of CSE, BUET. She completed her undergraduate studies from Military Institute of Science and Technology (MIST) in 2013 and M.Sc from BUET in 2018. Her research interest lies in the field(s) of Machine Learning, Deep Learning, and Time Series Data. She is currently doing her doctoral thesis under the supervision of Prof. Tanzima Hashem. She will be speaking about her ongoing PhD research in this talk.

Region Representation Learning for Gentrification Prediction using Building Footprint Data

Gentrification is a process that indicates the socioeconomic and physical transformation of a geographic area over time. Gentrification usually happens when affluent residents and businesses gradually move into an under-invested area, often leading to the displacement of the lower-income, original residents. Gentrification status is a crucial indicator for understanding urban dynamics and its implications on residents and communities within the region. Prediction of future gentrifying areas is essential for ensuring sustainable urban planning. While some researchers have made efforts to predict the vulnerable areas early, they mostly rely on decennial census data, and fail to capture rapid changes occurring in an urban area. To address this, the study proposes a novel deep learning architecture that predicts future gentrification by analyzing historical and current building footprint data, which reflects rapid changes in the area's physical appearance. The proposed method makes two key contributions. First, it introduces a dual-scale transformer encoder that generates region-level embeddings by encoding building characteristics to capture spatial correlations within a region. Second, it employs a cross-attention transformer to detect temporal changes by analyzing how these embeddings evolve over time. We show the effectiveness of the proposed method by conducting thorough experiments. The result demonstrates that the method effectively predicts future gentrification status of neighborhoods, offering an alternative to census-based approaches.