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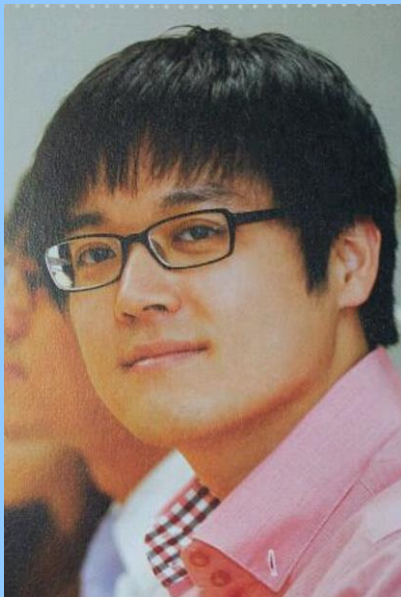
Industrial Engineering Colloquium

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Thursday
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4:35 – 5:50 p.m.
102 Leonhard Building

Clustering-based Real-time Population Health Management Using Online User-generated Data

Biomedical professionals may want to monitor population health information in real-time in order to provide medical treatment in advance of the spread of a new disease(s), which results in an increased number of patients as well as excessive medical expenses. Recently, online user-generated data (e.g., social media data) are widely used as a real-time and large-scale information source for population health management. Existing research on population health management using online user-generated data typically employs top-down approaches, which are constrained by their need for human-labeled training data or predetermined indicators, like disease names (e.g., Zika, Ebola). In many cases, manually labeling data is an expensive process and impractical for many real-world applications. Furthermore, it is also difficult to use predetermined indicators for new information discovery (e.g., nameless new disease discovery). A bottom-up machine learning model, which does not use human-labeled training data or predetermined indicators and is based on clustering techniques, is presented as a solution for real-time population health management.

About the Speaker

Sunghoon Lim is a Ph.D. Candidate in the Department of Industrial and Manufacturing Engineering at the Pennsylvania State University. He has also been the Scholar of the Center for Health Organization Transformation (CHOT), an industry-university cooperative healthcare research center (I/UCRC) funded by the National Science Foundation (NSF). He received a bachelor's and master's degree in Industrial Engineering from KAIST. His research develops and applies text mining and machine learning techniques to various areas, including healthcare, engineering design, and engineering education.