

# Unstructured Data Mining and Machine Learning Lab –

Prof. Sunghoon Lim, School of Management Engineering

Development of machine learning models for effective knowledge discovery from unstructured data

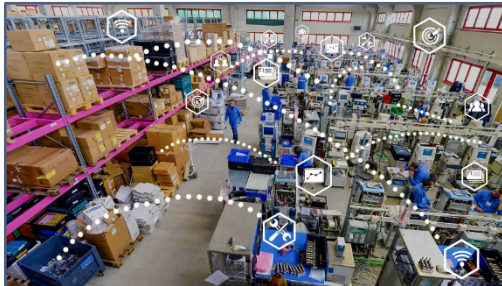
## Unstructured Data



Video Clips from  
Dashboard Cameras



Social Media  
Data



Unstructured  
Data in  
Factories

## Methodology

Domain Knowledge  
Extraction from  
Application Domains



Machine Learning  
Model  
Development

## New Knowledge Discovery



Safety  
Management



New Disease  
Detection



Predictive  
Maintenance

# Machine Learning

Structured  
Enterprise Data

Data Warehouse

ERP  
Systems

CRM  
Systems

10%

Machine  
Learning



Unstructured  
Enterprise Data

Email Systems

Research Data

Surveys

Customer Call  
Centre Records



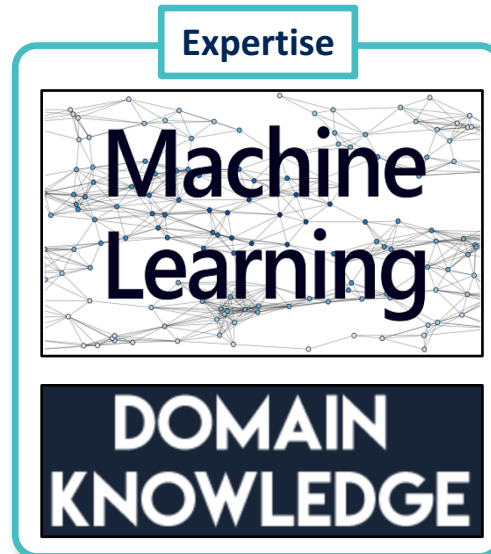
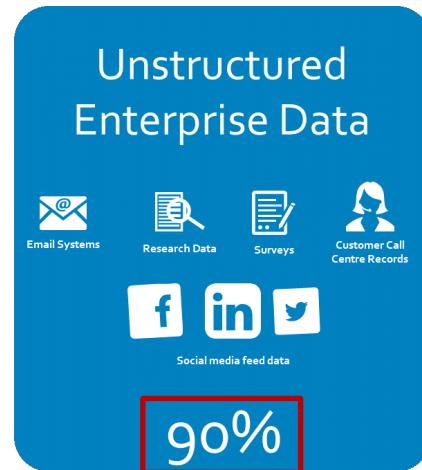
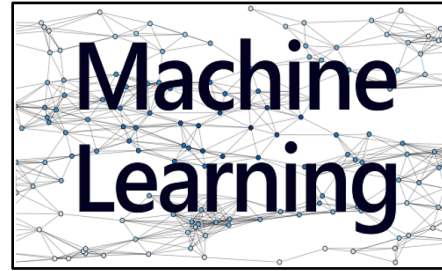
Social media feed data

90%

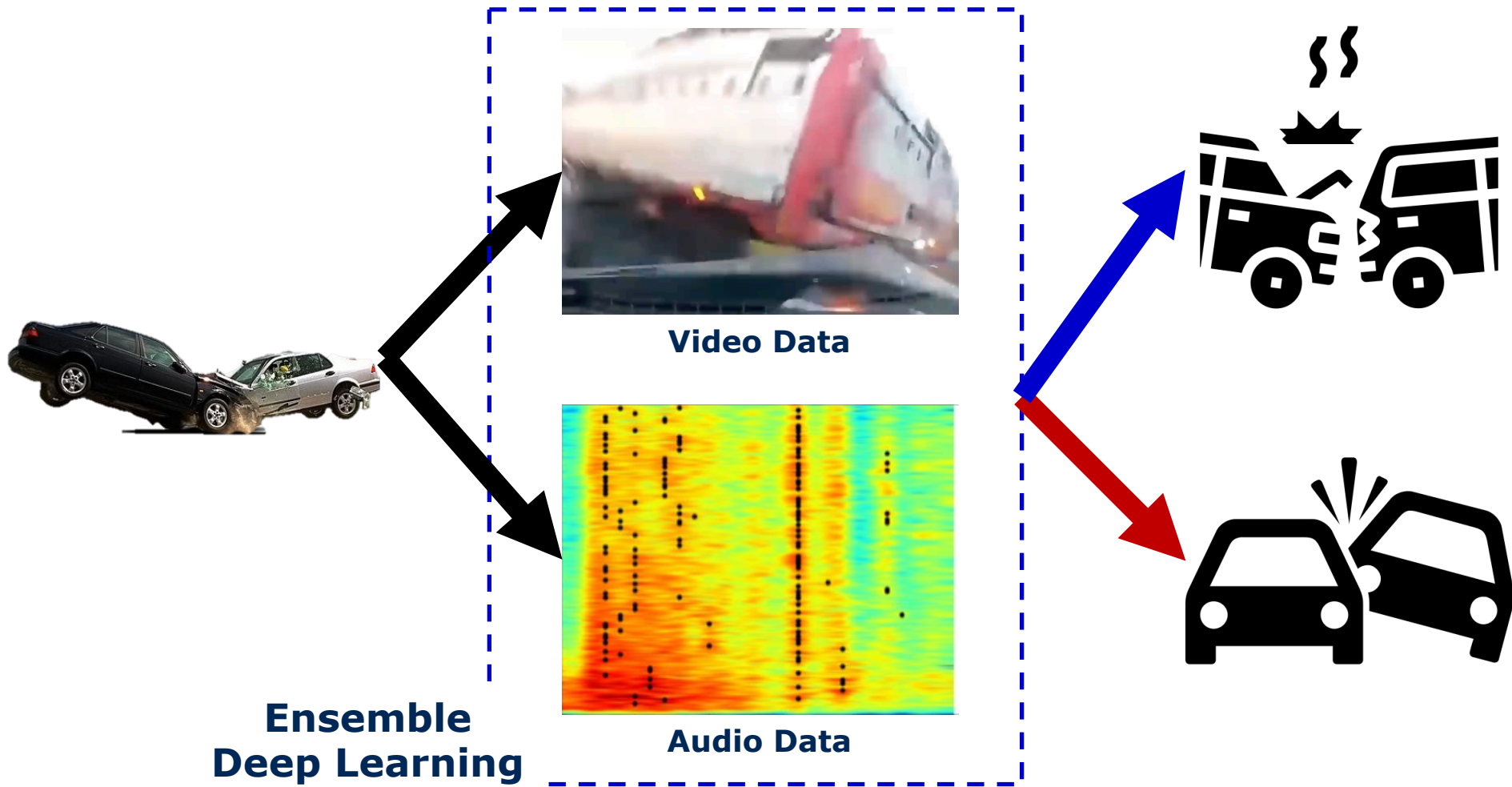
Machine  
Learning



# Machine Learning + Domain Knowledge: Our Research

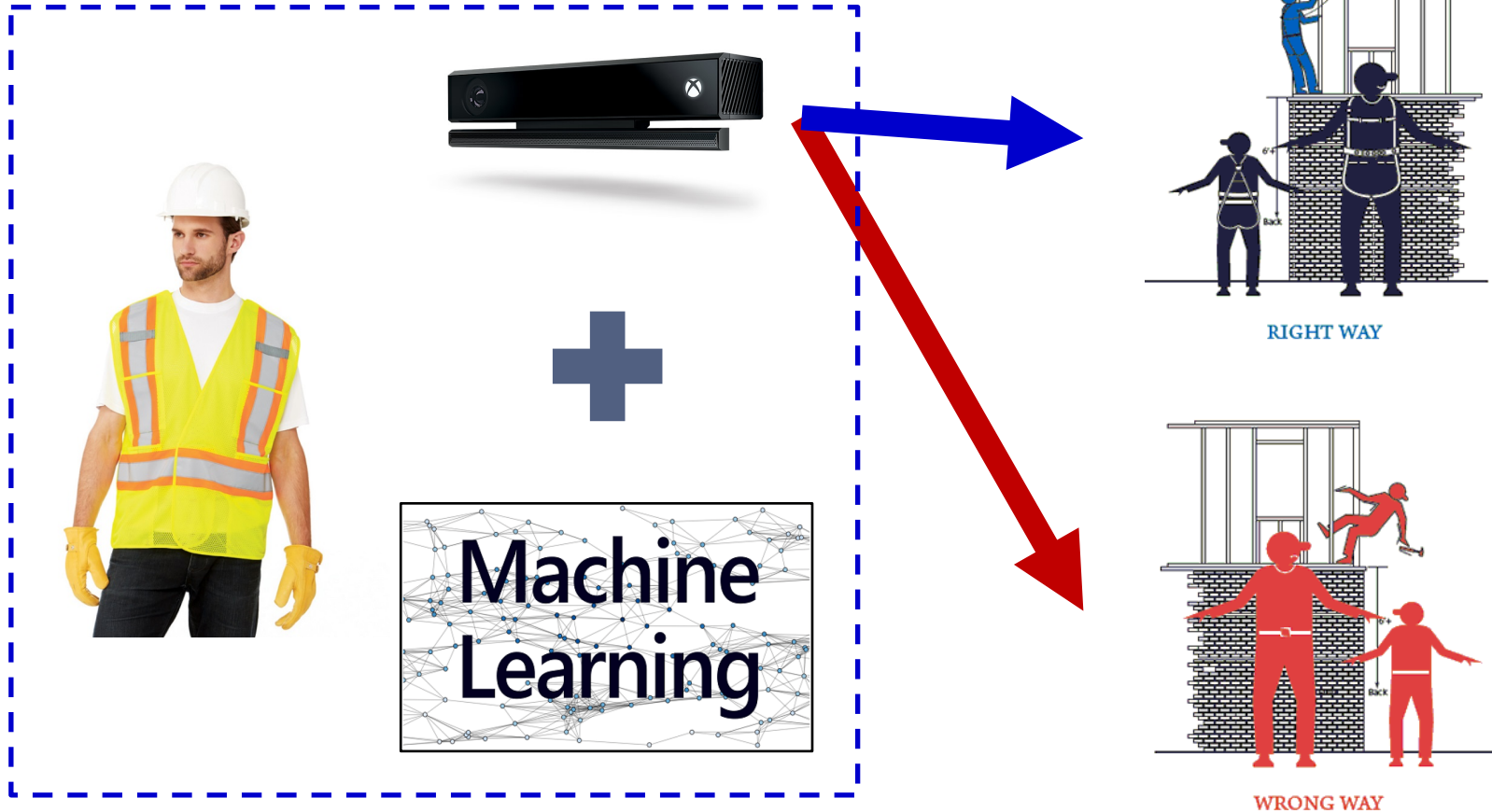


# Car Crash Detection Using Ensemble Deep Learning

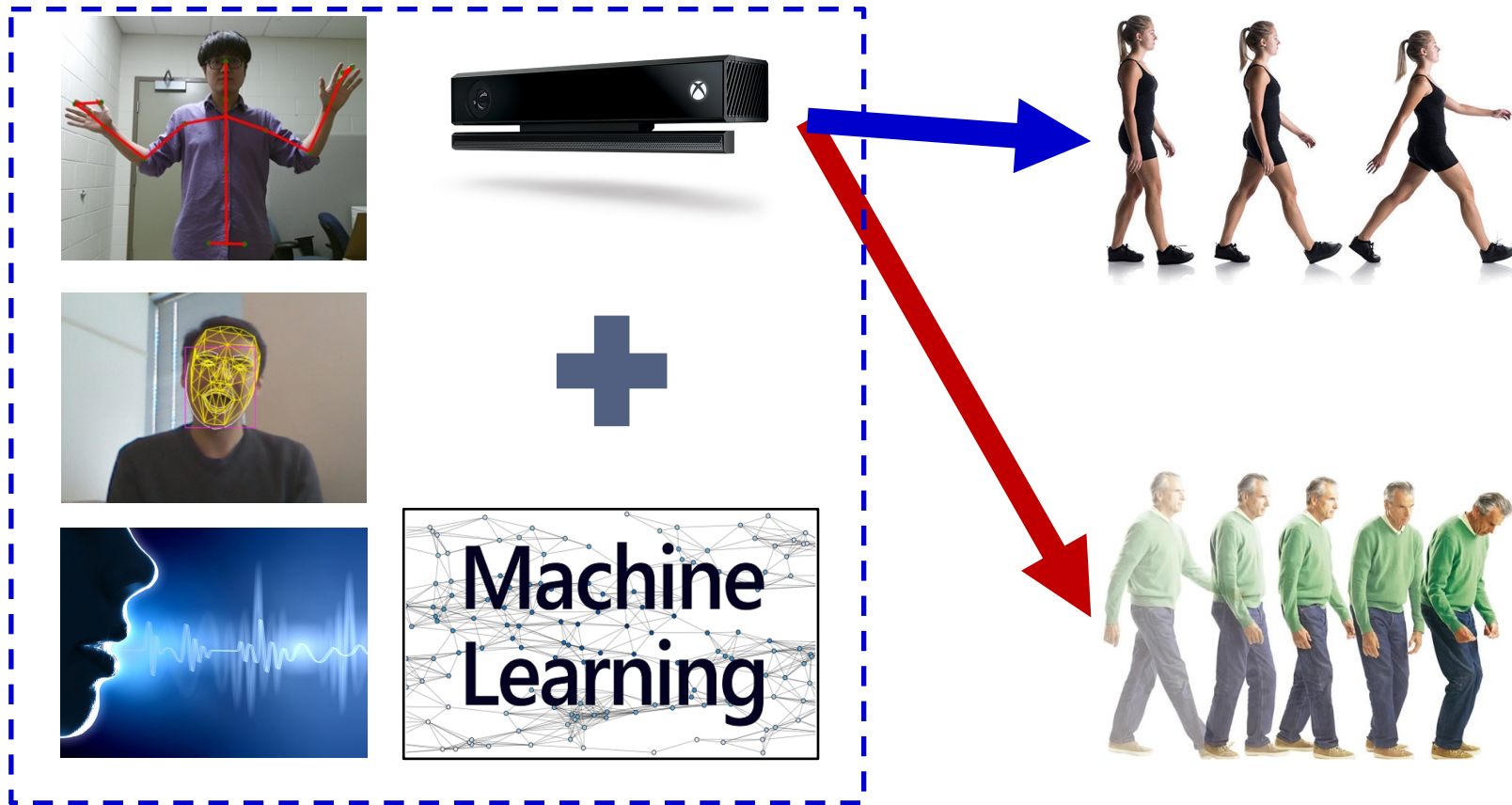


# Safety Management Using Machine Learning

(Funding from the National Research Foundation of Korea)

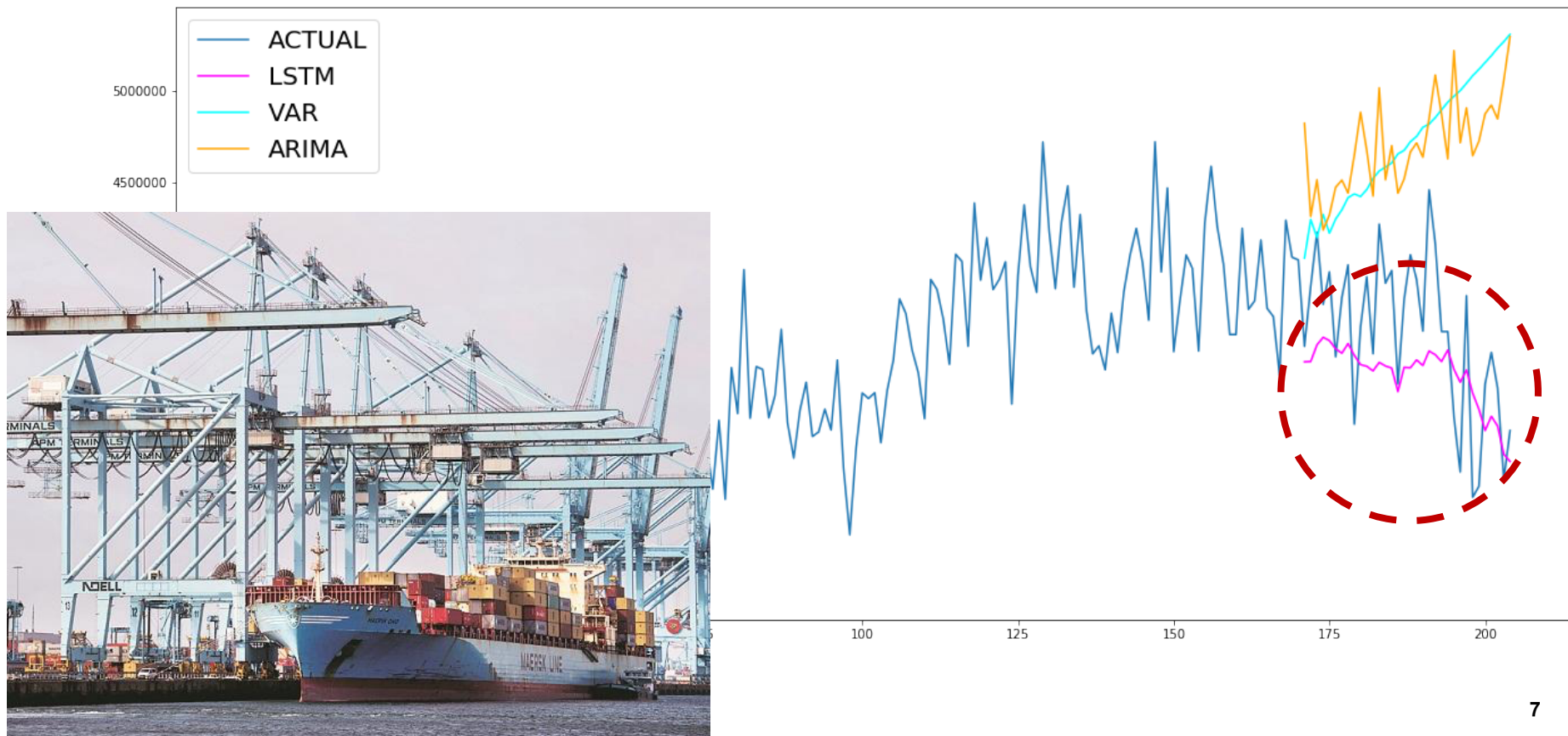


# Parkinson Disease Detection Using Machine Learning

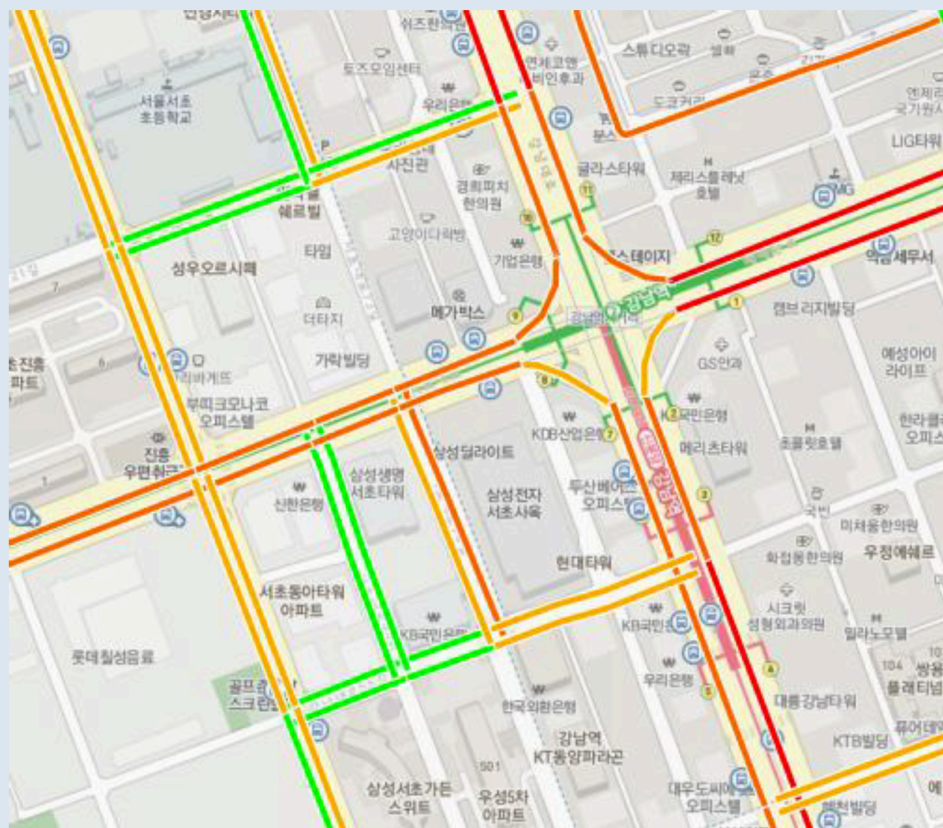


# Liquid Cargo Traffic Prediction Using Deep Learning (LSTM)

(Funding from UNIST-Ulsan Port Authority Smart Port Logistics Data Center)



# Taxi Demand Prediction Using Deep Learning



시간당평균 빈차횟수

- 1회~5회  
 6회~20회  
 21회~60회  
 61회~200회  
 200회 이상



금요일 23시30분 ~ 24시  
날씨 맑음

# Matching Babysitters and Parents Using Machine Learning

## Developing Recommender Systems Using Machine Learning Techniques



0~10세 아이 부모



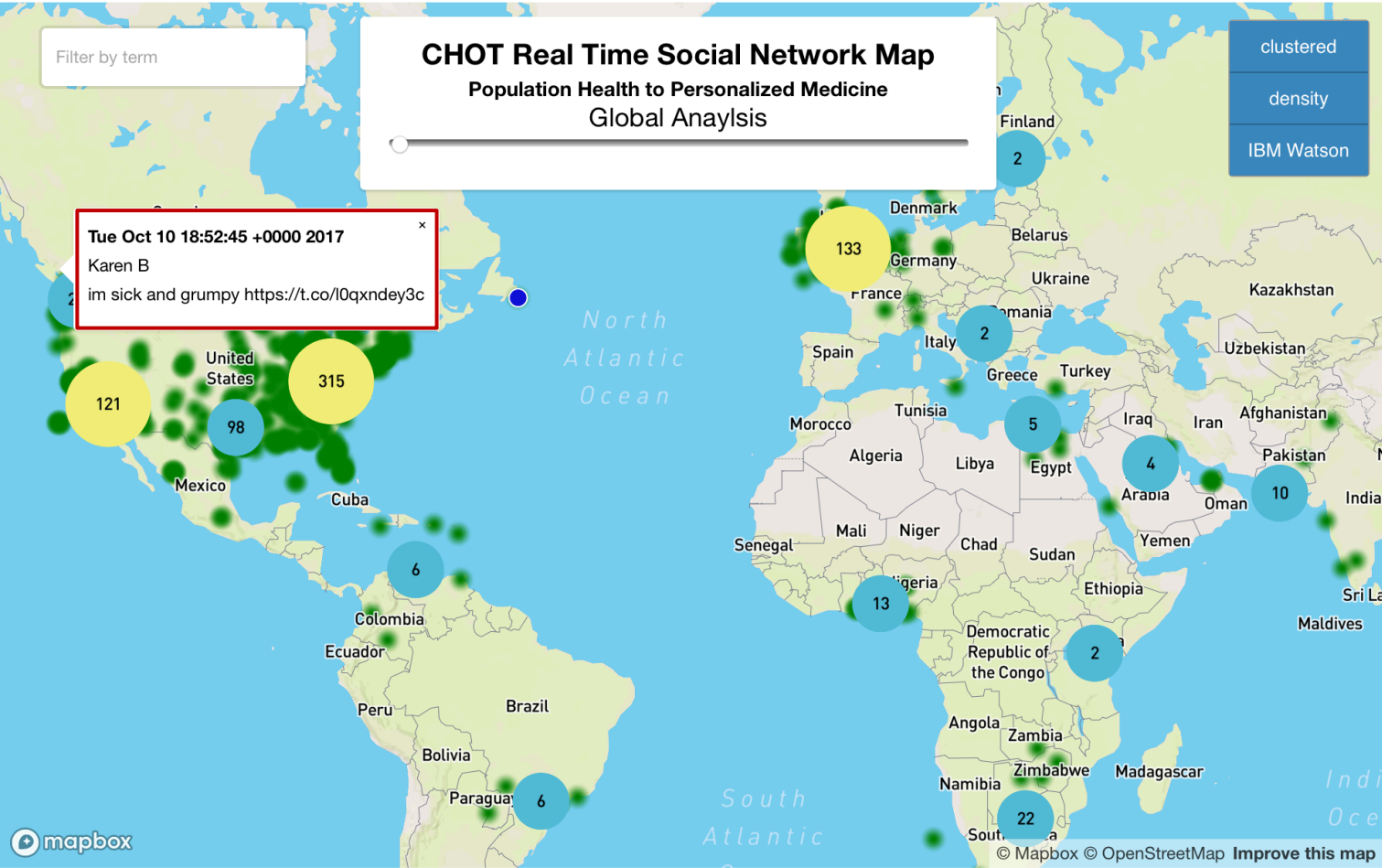
- 대학생
- 보육교사
- 동네 엄마
- 취업준비생

파트타임 일자리를 찾는  
아이돌보미

# Predictive Maintenance Using Machine Learning



# Disease Prediction Using Machine Learning and Online Data



# Judgement Analysis Based on Crowdsourced Opinions

(Conducted by Dr. Sujoy Chatterjee and Prof. Sunghoon Lim)

Judgement analysis is in a general way of learning about human decision from multiple opinions.

Showing my son the Disney 'Aladdin'  
won't make him want to join ISIS,  
will it?

5:40pm - 5 Dec 14



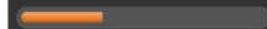
**CROWD + OUTSOURCING**



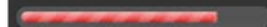
Skip



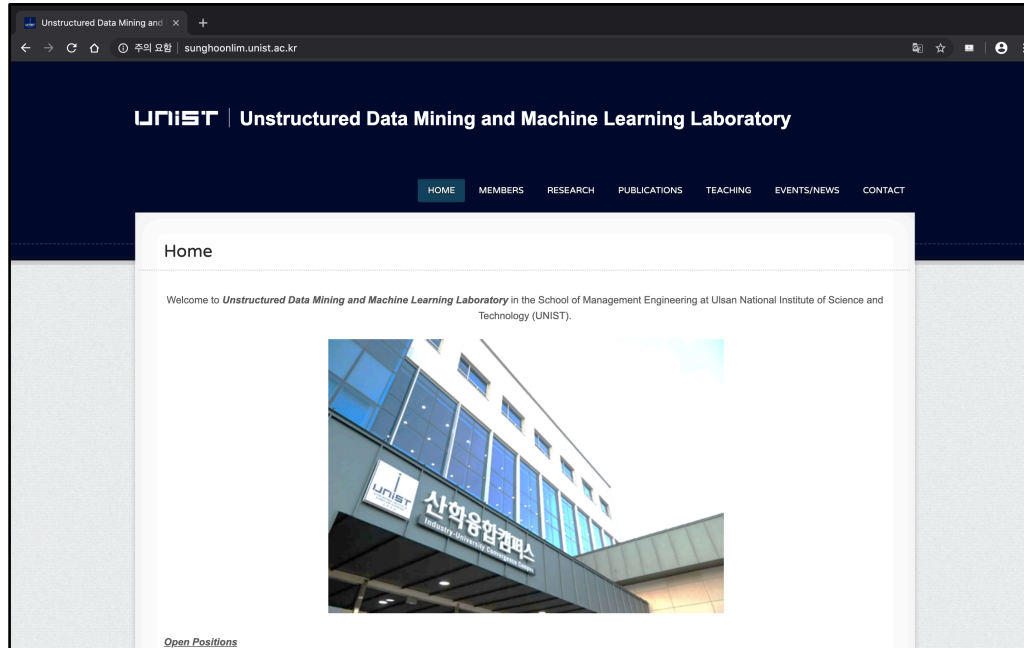
Yes



No



# Thank You



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