TweetFit: Fusing Multiple Social Media and Sensor Data for Wellness Profile Learning

by Aleksandr Farseev & Tat-Seng Chua
farseev@u.nus.edu
chuats@comp.nus.edu.sg

Image Concept Features
- Food
- Animals
- People

Mobility & Venue Semantics Features
- Spatial
- Temporal
- Venues

Linguistic & Topics Features
- LIWC
- Topics
- BigARTM

Sensor Features
- GPS
- Heart Rate
- Statistics

The dataset: nussense.farseev.com
TweetFit: Fusing Multiple Social Media and Sensor Data for Wellness Profile Learning

Multi-Source Multi-Task Learning:
Data Source Combinations Are Tasks

\[
\arg \min_w \frac{1}{T} \sum_{t=1}^{T} \frac{1}{N_t} \sum_{i=1}^{N_t} \log \left(1 + e^{-y^t_{i, w^t t}}\right) + \gamma \sum_{s=1}^{S} \sum_{f=1}^{F_s} ||w_{p(s,f)}||
\]

BMI Category & BMI Trend Inference

The dataset: nusense.farseev.com