

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

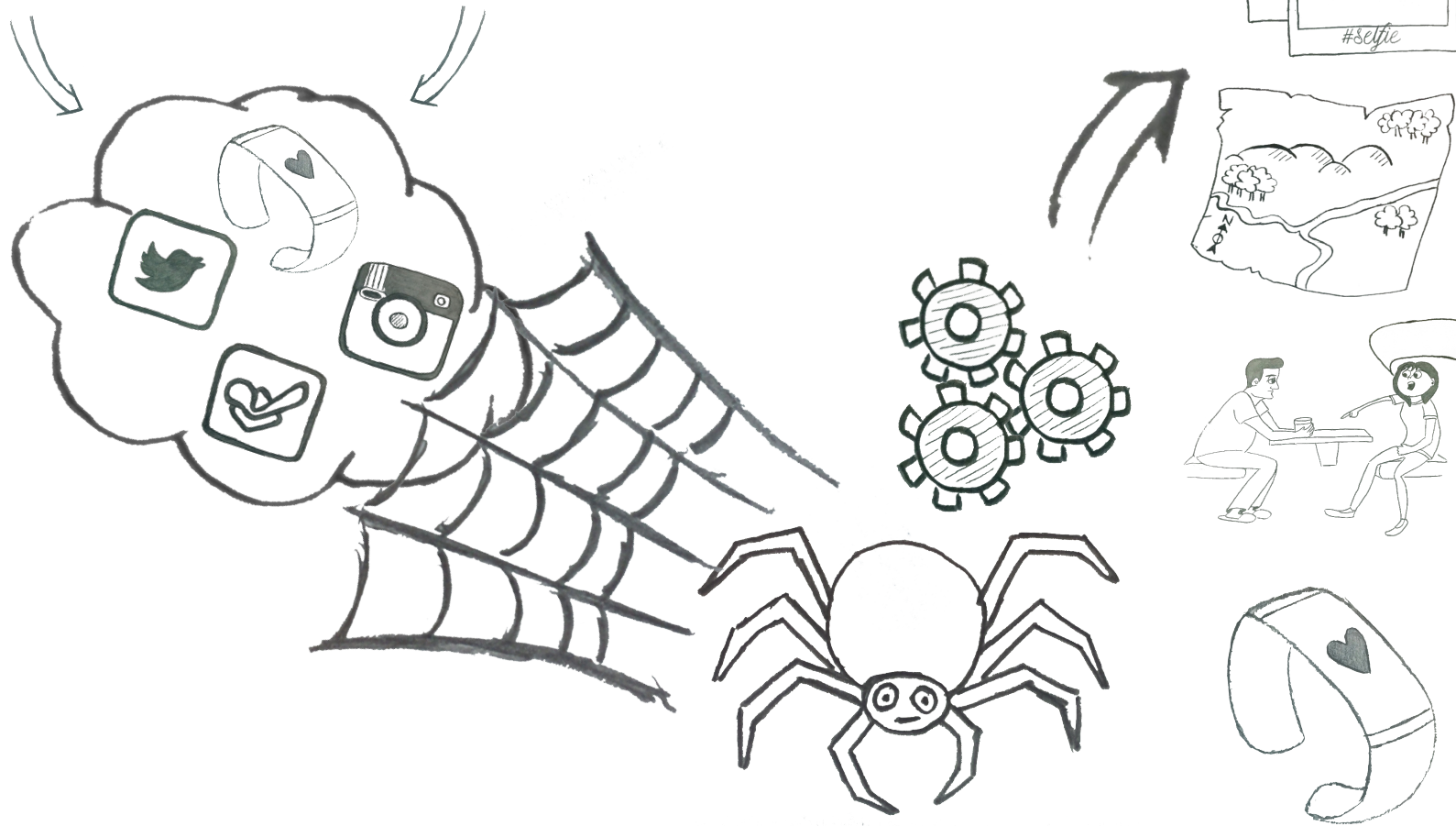
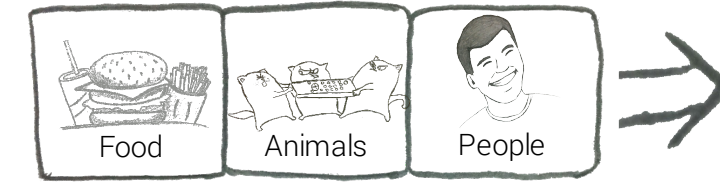
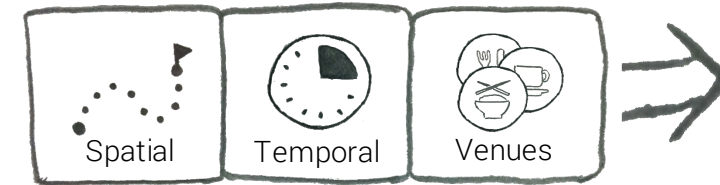


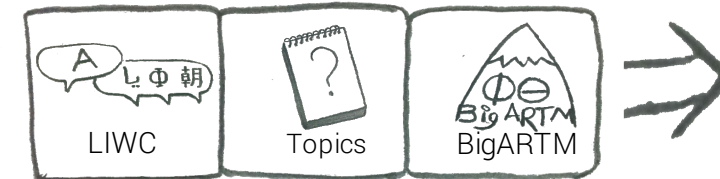
Image Concept Features



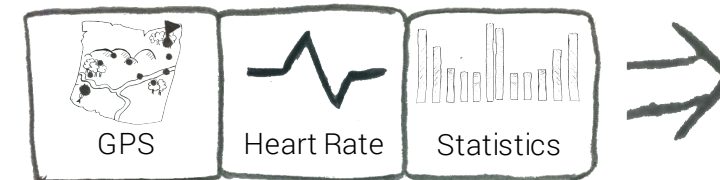
Mobility & Venue Semantics Features



Linguistic & Topics Features

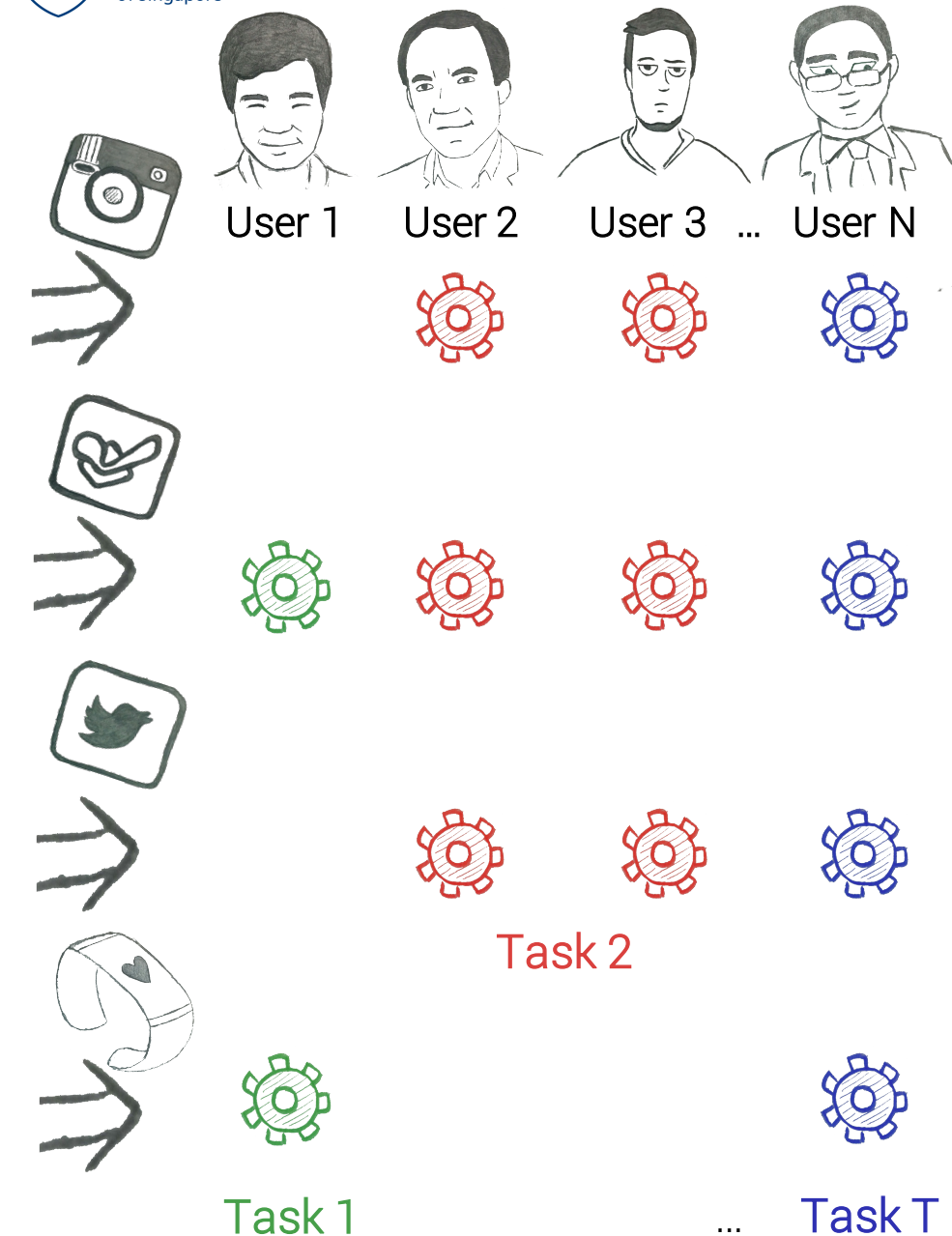


Sensor Features



The dataset: nussense.farseev.com

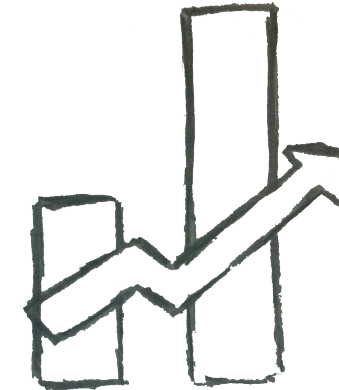
TweetFit: Fusing Multiple Social Media and Sensor Data for Wellness Profile Learning



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

$$\arg \min_{\mathbf{w}} \frac{1}{T} \sum_{t=1}^T \frac{1}{N_t} \sum_{i=1}^{N_t} \log \left(1 + e^{-y_i^t f_t(\mathbf{x}_i^t; \mathbf{w}^t)} \right) + \gamma \sum_{s=1}^S \sum_{f=1}^{F_s} \|\mathbf{w}_{p(s,f)}\|$$

**BMI Category & BMI Trend
Inference**



The dataset: nussense.farseev.com