

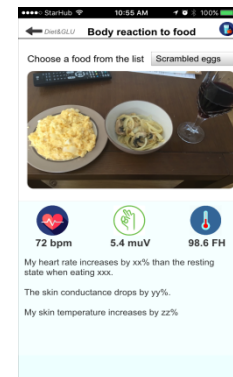
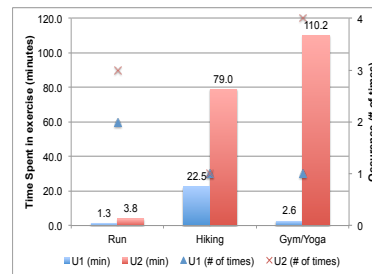
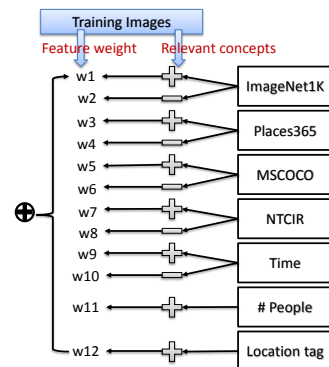
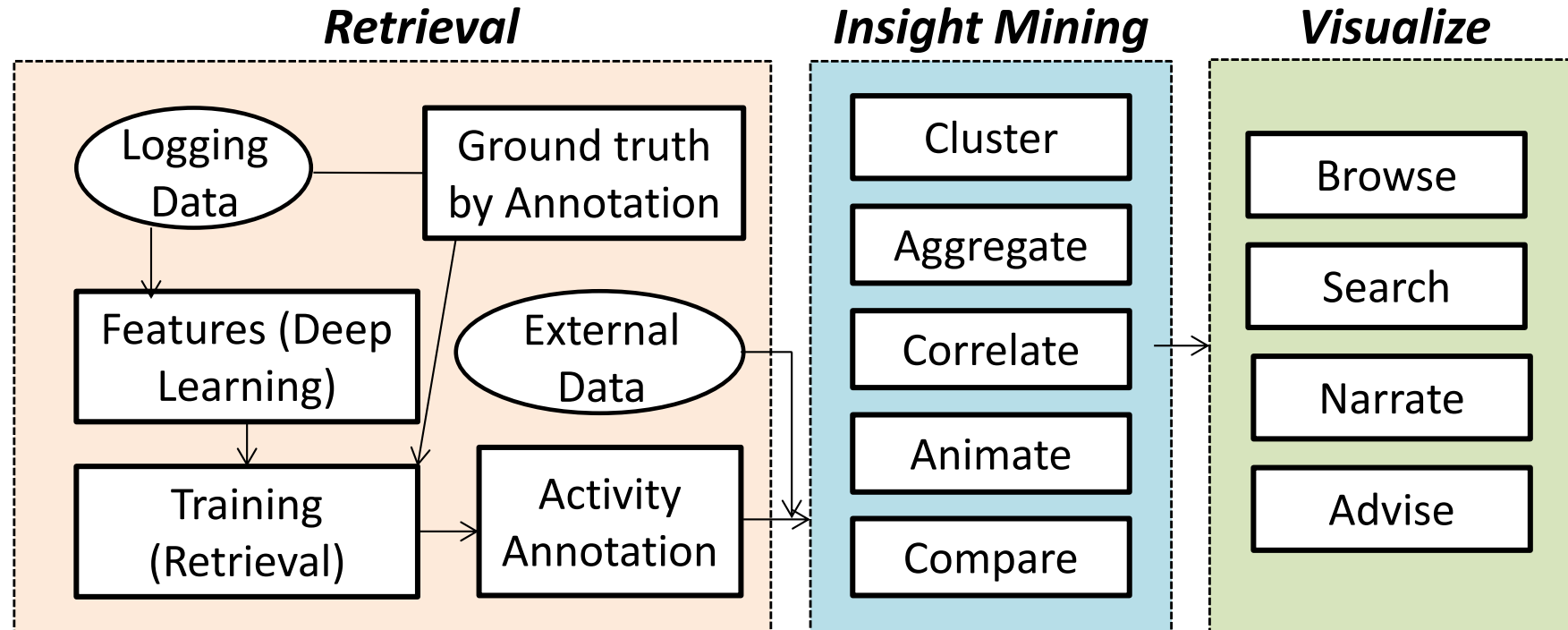
# **VCI<sup>2</sup>R at the NTCIR-13 Lifelog-2 LIT Task**

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# LIT Framework

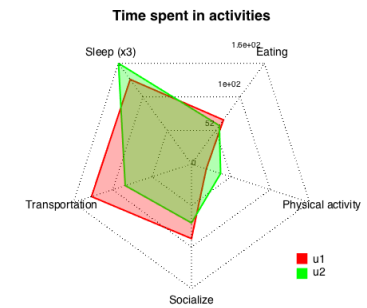
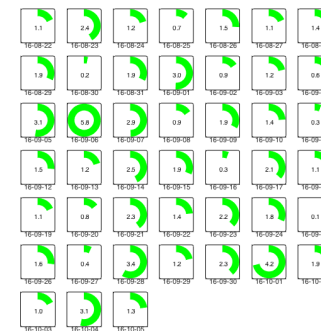
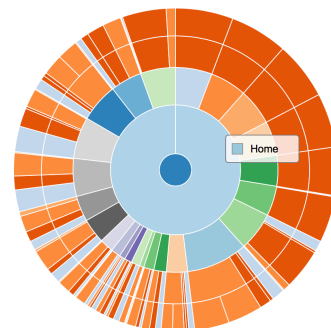
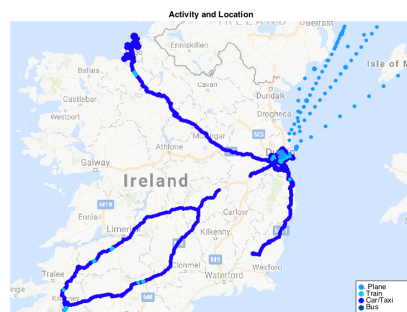
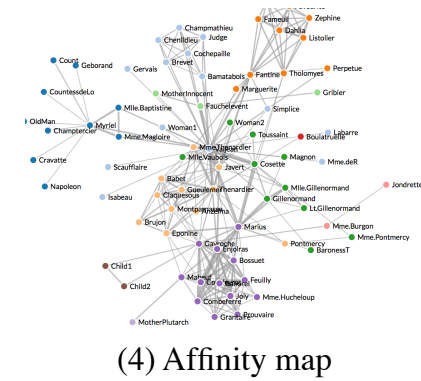
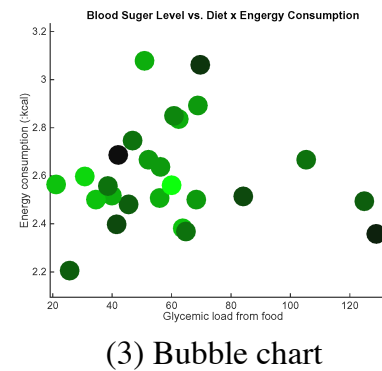
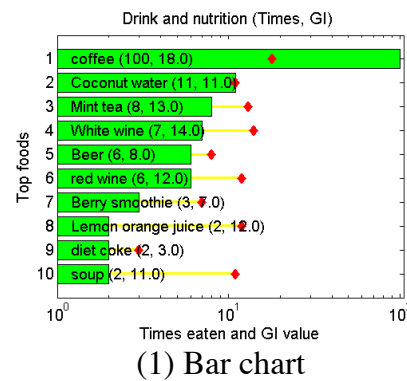


# Decoding the Topics and Retrieving Activities

Topics	Activities
T1: Diet and blood sugar level	Eating: user is eating food
T2: Exercise & physical activity	Walk, Run, Hiking*, Gym/Yoga.
T3: Social	User is facing one or more persons in a conversation
T4: Transportation	Driving a car or taking a taxi, taking a bus, taking a train, taking a plane

	T1: Diet/eating	T2: Exercise	T3: Social	T4. Transport
Retrieval Process	<ol style="list-style-type: none"><li>1. Extract semantics for all image frames: 1K objects, 365 places, 80 MS coco, meta-data (location, activity)</li><li>2. Define topics: semantics inclusion criteria</li><li>3. Prepare training and validation set from ground truth</li><li>4. Train parameters (linear regression)</li><li>5. Visual examination and fine-tuning (repeat steps 2~5)</li></ol>			

# Theme-finding & Insight Visualization



(5) Activity on geographical map

(6) Sunburst chart

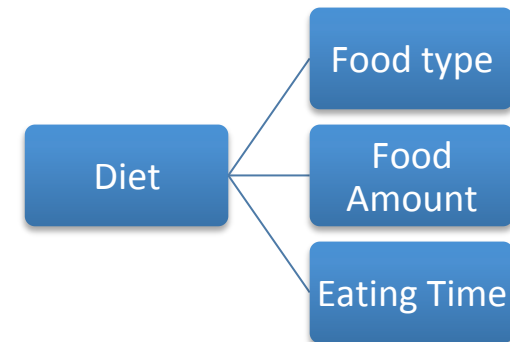
(7) Calendar view

(8) Radar chart

# T1. Diet and Blood Sugar Level

## Diet log: Text

```
- <drink-logs>
- <log>
  <time>06:20</time>
  <drink>Coffee</drink>
</log>
- <log>
  <time>08:45</time>
  <drink>Coffee</drink>
</log>
- <log>
  <time>15:50</time>
  <drink>Coffee</drink>
</log>
- <log>
  <time>16:35</time>
  <drink>Glass of red wine</drink>
</log>
</drink-logs>
- <food-logs>
- <log>
  <time>06:20</time>
  <food>Small cereal</food>
</log>
- <log>
  <time>08:20</time>
  <food>Fruit</food>
</log>
- <log>
  <time>11:50</time>
  <food>lunch: couscous with lamb and
  water</food>
</log>
- <log>
  <time>18:35</time>
  <food>homemade bolognaise with
  wholewheat pasta and red wine +some
  cashew nuts</food>
</log>
</food-logs>
```

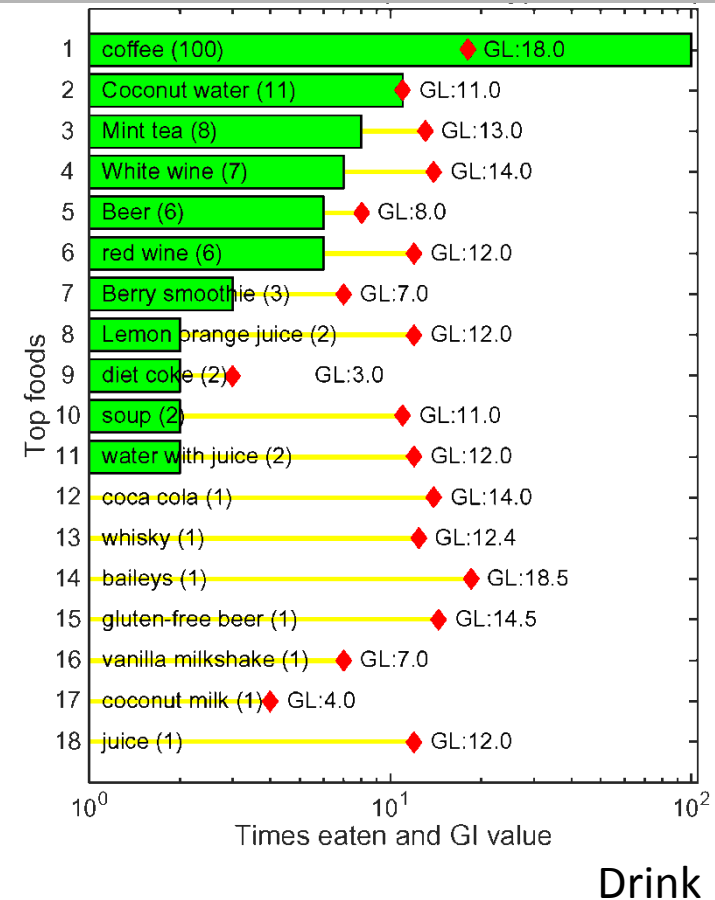
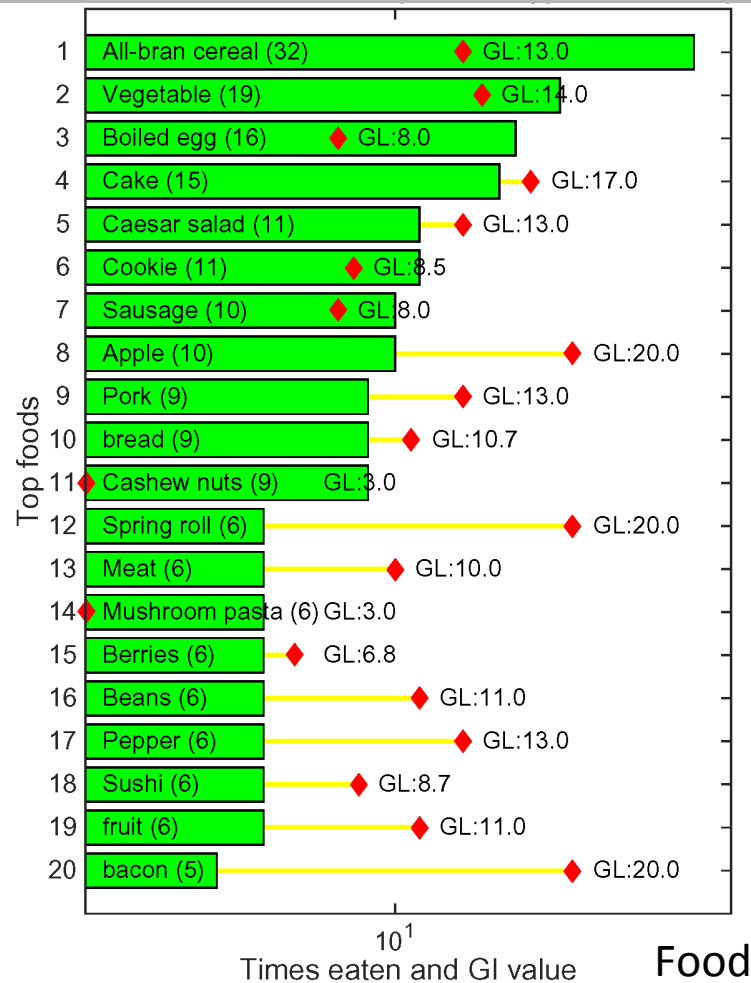


## Glycemic index (GI) and glycemic load (GL) values determined in subjects with normal glucose tolerance: 2008

Food Number and Item		GI <sup>2</sup> (Glucose Size = 100)	Serve Size g	GL <sup>3</sup> per serve
<b>BAKERY PRODUCTS</b>				
<b>Cakes</b>				
1	Banana cake, made with sugar	47±8	60	14
2	Banana cake, made without sugar	55±10	60	12
3	Carrot cake, prepared with coconut flour (Philippines)	36	60	8
4	Chocolate cake made from packet mix with chocolate frosting (Betty Crocker, General Mills Inc., Minneapolis, USA)	38±3	111	20
5	Cupcake, strawberry-iced (Squiggles, Farmland, Grocery Holdings, Tooronga, Australia)	73±12	38	19

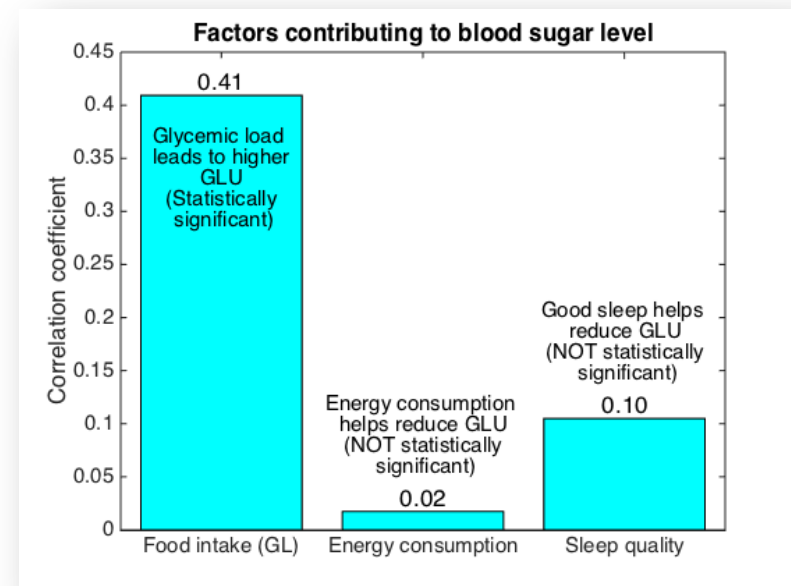
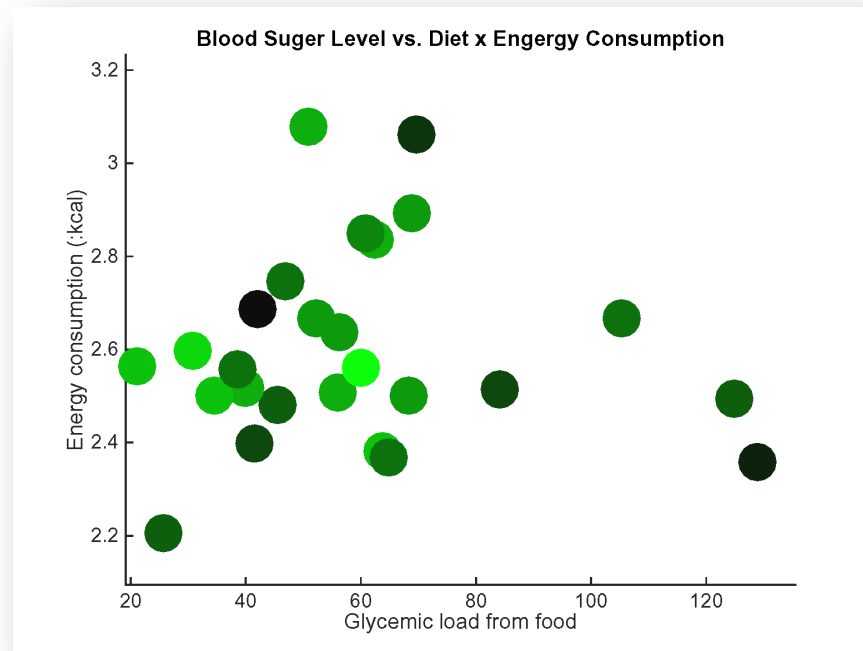
# T1. Diet and Blood Sugar Level

Nutritional information (Glycemic load) of frequent food & drink



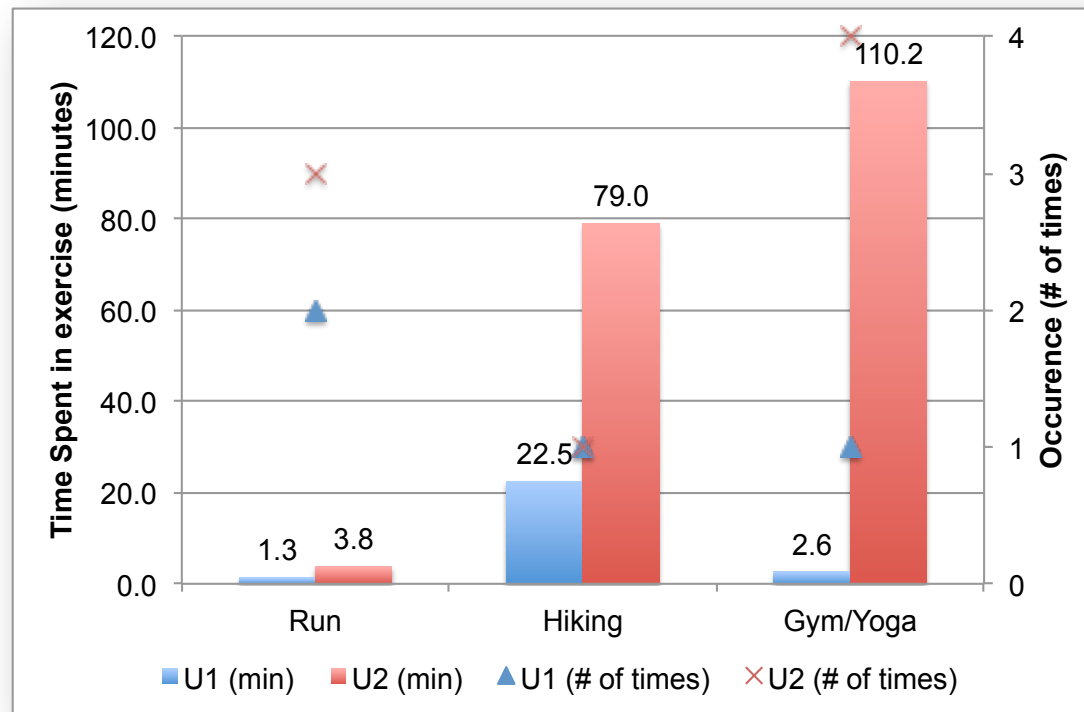
# T1. Diet and Blood Sugar Level

## Factors contributing to blood sugar level



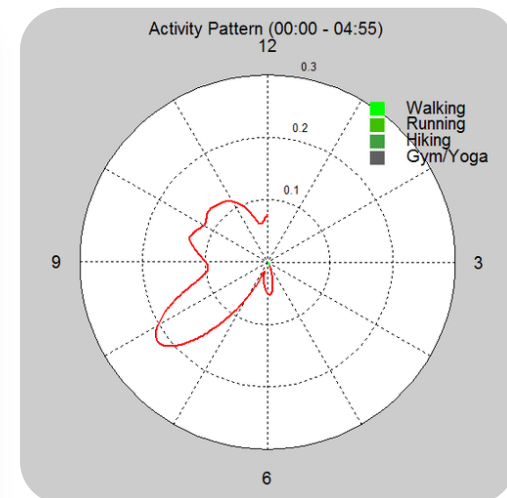
- Food intake is the most important factor to BLU
- Exercise and sleep may help maintain lower blood sugar level, but not statistically significant.

# T2: Exercise & Physical Activity

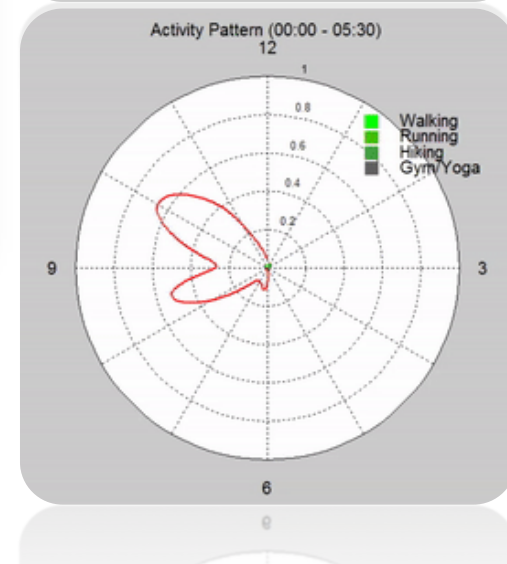


- Walking is the main mode of exercise; especially true for u1.
- U2 exercises more than U1.

## Temporal Pattern



U1

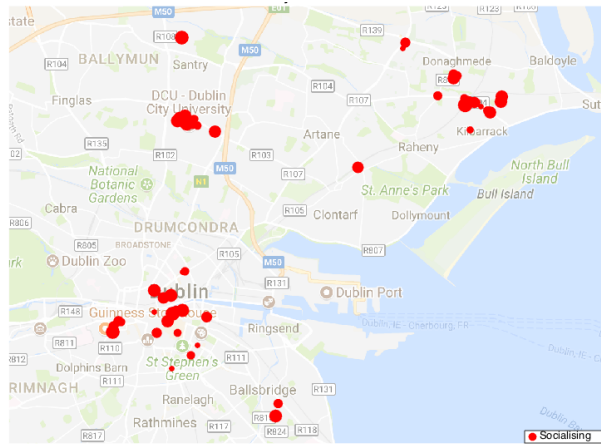


U2

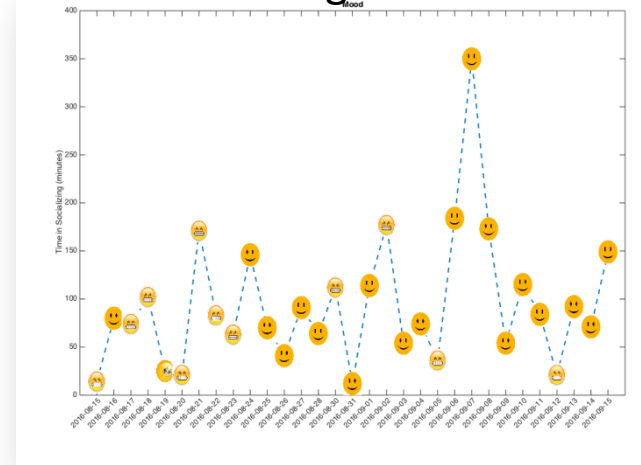


# T3. Socialize

Geographic view



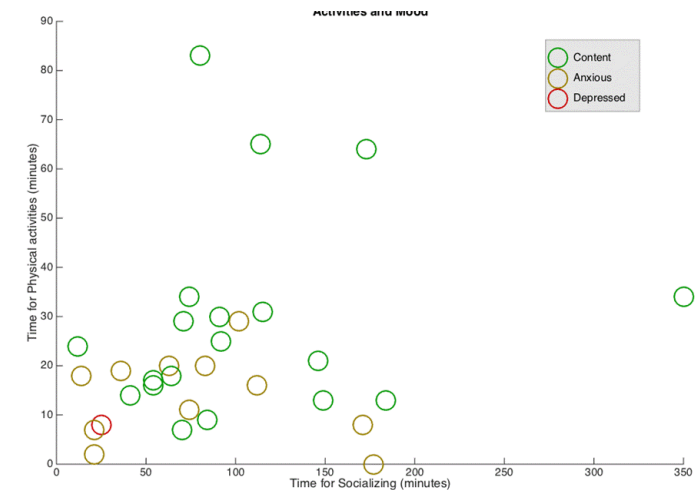
Socializing vs. mood



Calendar view

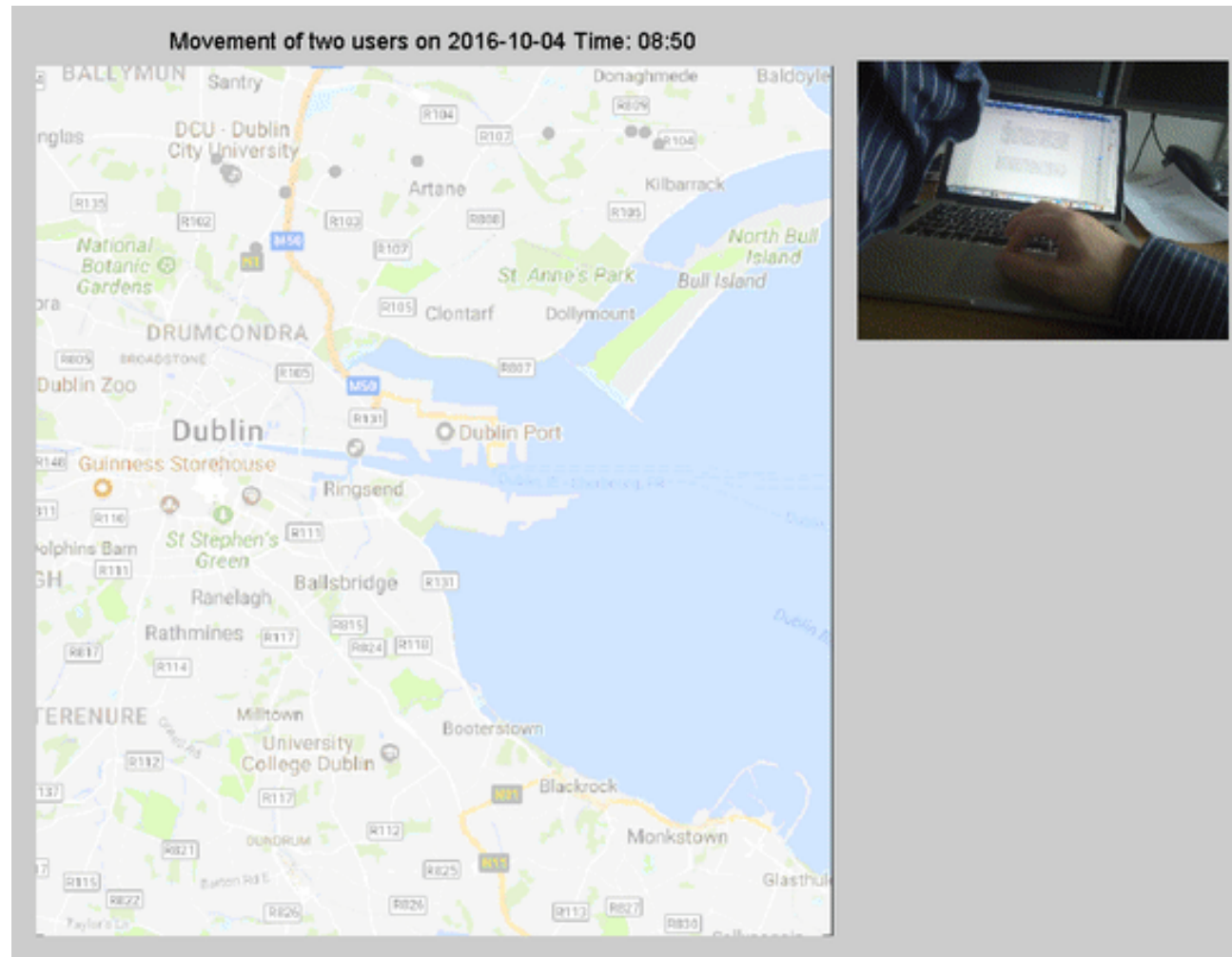


Socialize + exercise is good for mood



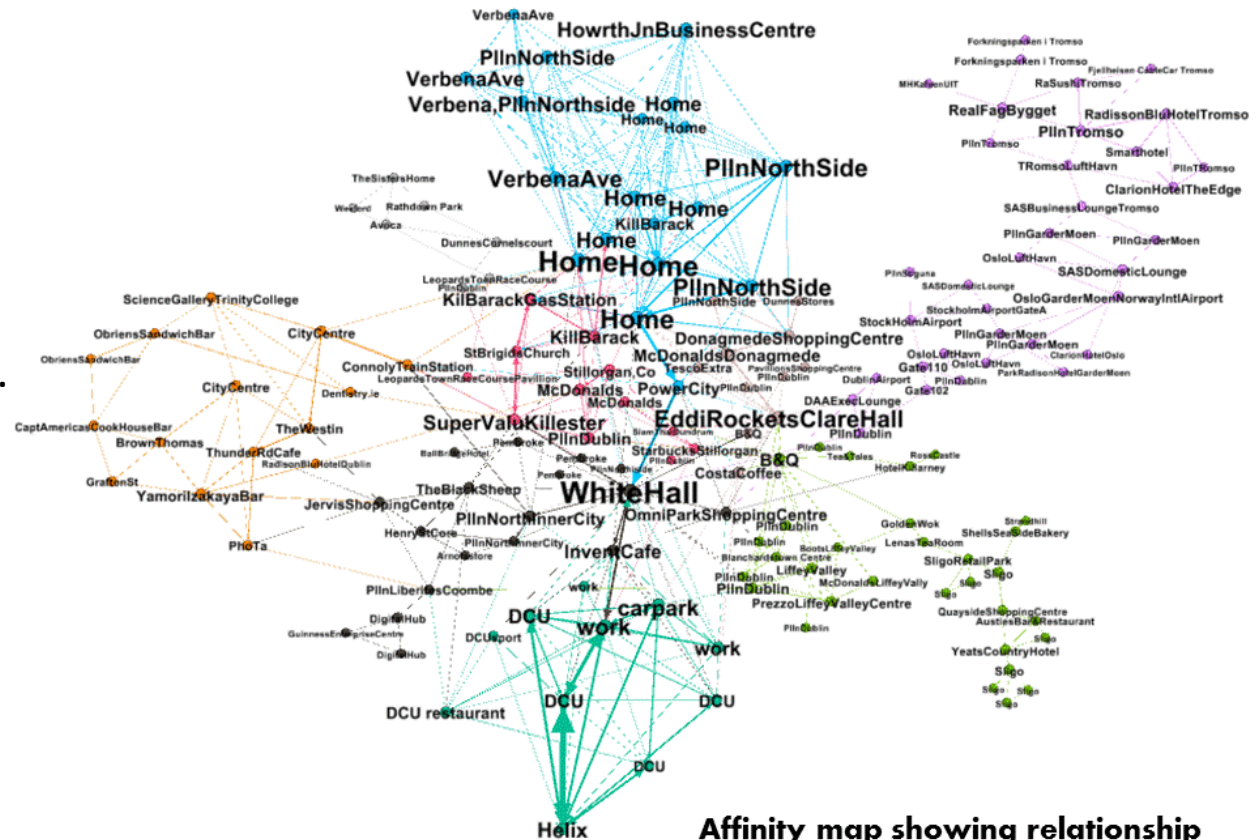
# T4. Where

- Co-location of two users inferred from GPS + time
- < 30 meters
- Date: 2016.10.14
- Time: 19:00
- Place:  
The Westin Dublin?
- Multiple view to show the meeting of two users: map + photos



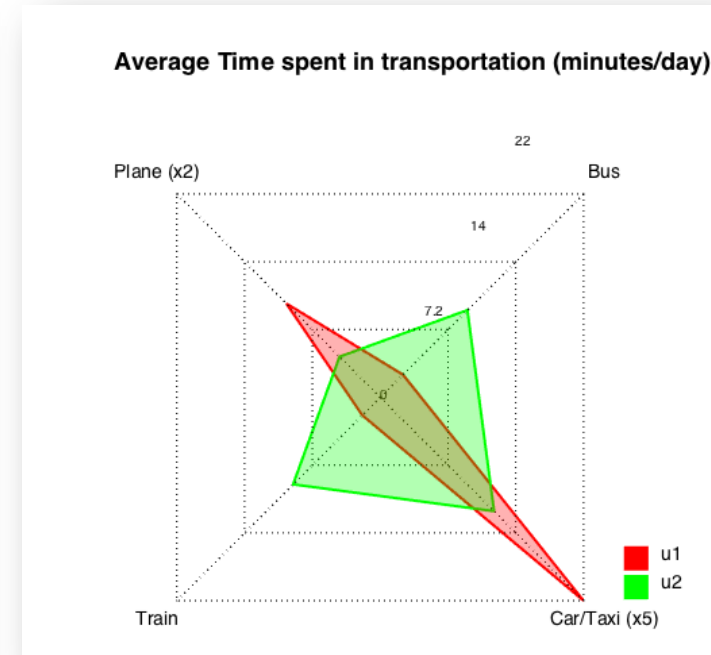
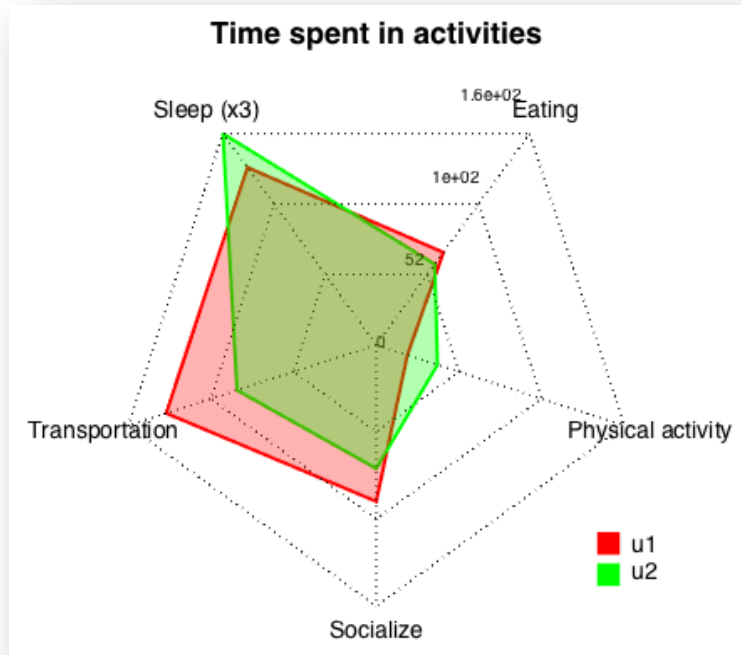
# T4. Where

- The affinity map shows places that are connected according to temporal and spatial dimensions.
- Each node represents a place
- Each edge shows a connection between them.
- A connection can be specified according to the transportation mode (walk, car, bus, etc.)
- The map can be filtered according to transportation mode.



**Affinity map showing relationship among places**

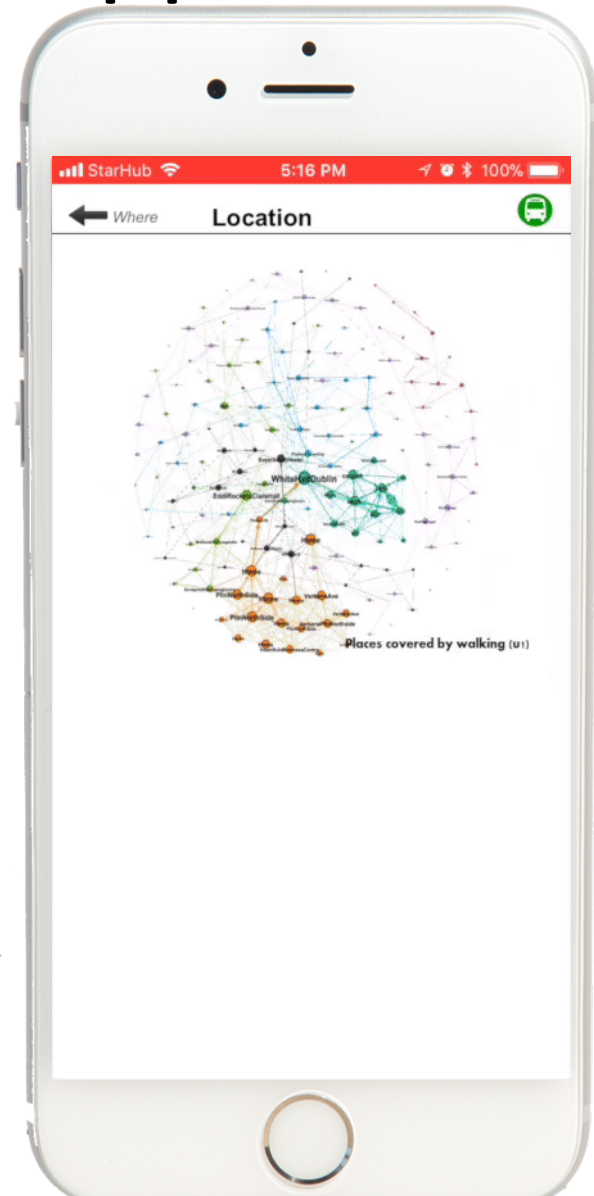
# T5: Compare



U1 spent more time in commuting, eating and socializing, whereas u2 has more physical activity and enjoyed more sleep.

# Prototype Mobile App

- Themed diary presented in a mobile app.
- Five themes are included according to the LIT task requirements.
- Each theme features a list of items/questions of interest.
- Insights are elaborated and visualized under each item.
- On-line mode to be developed.



# Summary

- **Data recording and processing**
  - High quality data is always desirable
  - Accurate retrieval is key
- **Customization and personalization**
  - Insights are highly individualized
  - Allow layman to generate their own insights
- **Insight interpretation**
  - Allow layman users to understand
- **Scientific rigor vs. user experience**
  - Interesting results facilitate UX but may sacrifice scientific rigor.

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