On Presentation at International Conferences

Yu Zheng (郑宇)

Data Management, Analytics, and Services

http://research.microsoft.com/en-us/people/yuzheng/
Presentations

• Many kinds of presentations
  – Business meetings
  – Teaching
  – Interview
  – Election
  – Elevator pitch
  – Conference: Oral, Poster, Demo presentations

• A fundamental skill for a researcher

• A Daily job for us
How can I give a successful oral presentation at an international conference?
Why me

• Non-overseas studying experience 😊
• Gave presentations at many top-tier conferences
• Gave tutorials at WWW, ACM SIGSPATIAL, etc.
• Gave guest lectures in MIT, CMU, Cornell, and UIUC
• Interviewed by many international presses, MIT TR, BBC,…
Why give a presentation at a conference?

- An **opportunity** ✓
- Advertising research ✓
- Getting **feedback** ✓
- Connect to community ✓
- A burden ❌
- Detailed methods ❌
- Defense presentation ❌
- Argue with audiences ❌

Advertising  

feedback  

Connection
Now, imaging you are a movie director who is trying to encourage people to watch your movie with a tailor or preview.
Overview

• **Before** a presentation

• **During** a presentation

• **After** a presentation

**Before**
- Create slides
- Rehearsal

**During**
- Advertising
- Delivery
- Interaction

**After**
- Q&A
- Meetings
Before a Presentation

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After
- Meetings

Meetings
Before a Presentation – Slides

• Why use slides
  – Provides notes and release speakers
  – Offer highlights to audiences
  – Better demonstrate complex ideas

• The difference between slides and a paper
  – Animations, videos, figures
  – You can control the focus of your audiences

deliver a lively story
Before a Presentation – Slides

- Structure
- Language
- Insight
- Results

- Using two examples
  - Driving directions based on taxi trajectories, ACM GIS 2010
  - Discover regions of different functions using human mobility and POIs, KDD 2012
Before Presentation – Slides

**Structure of slides**

- Positive (✔)
  - Goal and results first
  - Keep the outline in mind
  - Focus on your own work
  - Tell me why
  - Less is more (1 min/slide)

- Inappropriate (❌)
  - Long introduction
  - An explicit outline slide
  - Many related works
  - Many technical details
  - Many slides, goes quickly
Before Presentation – Slides

• Outline
  – Background
  – contribution
  – Related work
  – Methodology
  – Experiments
  – Conclusion
  – Future work

Negative example
Before Presentation – Slides

• What we do
• Result highlight
• Motivation of your goal
• Method summary
• Insight of your method (why this method)
• Results with stories and discussion
• Take away messages

Just keep it in mind

Not necessary to have an explicit slide
Discover Regions of Different Functions using Human Mobility and POIs

In KDD 2012
Goals

Discover regions of different functions in urban areas
Identify the kernel density of a functionality
Before Presentation – Slides

**Language of slides**

- Positive (✓)
  - Short terms
  - A few terms per slide
  - A figure is worth of thousands of words
  - Illustrate a process with animations and videos

- Inappropriate (✗)
  - Long sentences
  - Many texts and equations
  - Pasting static algorithms
Examples
The advances in location-acquisition technologies have led to a myriad of spatial trajectories. These trajectories are usually generated at a low or an irregular frequency due to applications’ characteristics or energy saving.

In this paper, we present a Route Inference framework based on Collective Knowledge (abbreviated as RICK) to construct the popular routes from uncertain trajectories.

Our work can benefit trip planning, traffic management, and animal movement studies. The RICK comprises two components: 

- Routable graph construction
- Route inference

We explore the spatial and temporal characteristics of uncertain trajectories and construct a routable graph by collaborative learning among the uncertain trajectories. Second, in light of the routable graph, we propose a routing algorithm to construct the top-

- We have conducted extensive experiments on two real datasets, consisting of Foursquare check-in datasets and taxi trajectories. The results show that RICK is both effective and efficient.
Driving Direction Based on Taxi Trajectories

A *time-dependent*, user-specific, and self-adaptive driving directions service using

- GPS trajectories of a large number of taxicabs
- GPS log of an end user

Physical Routes + Traffic flows + Drive behavior

ACM SIGSPATIAL GIS 2010 best paper runner-up award and a publication on KDD 2011
1. For each region topic $k$,
   (a) draw $\lambda_k \sim \mathcal{N}(0, \sigma^2 I)$;
   (b) draw $\beta_k \sim \text{Dir}(\eta)$.

2. Given the $r$th region,
   (a) for each region topic $k$, let $\alpha_{r,k} = \exp(x_r^T \lambda_k)$;
   (b) draw $\theta_r \sim \text{Dir}(\alpha_r)$;
   (c) for the $n$th mobility pattern in the $r$th region $m_{r,n}$,
      i. draw $z_{r,n} \sim \text{Mult}(\theta_r)$;
      ii. draw $m_{r,n} \sim \text{Mult}(\beta_{z_{r,n}})$.

Here, $\mathcal{N}$ is the Gaussian distribution with $\sigma$ as a hyper parameter, and $\lambda_k$ is a vector with the same length as the POI feature vector.
Methodology Overview

• Mapping from regions to documents
  – Regions $\rightarrow$ Documents ($R$)
  – Functions $\rightarrow$ Topics ($K$)
  – Mobility patterns $\rightarrow$ Words ($N$)
  – POIs $\rightarrow$ meta data like Key words and authors

Infer the topic distribution using a LDA(Latent Dirichlet allocation)-variant topic model
Pasting a static algorithm

Algorithm 2: Variance-Entropy-Based Clustering

Input: a set of points $S = \{(x_i, y_i)_{i=1}^{n}\} \subseteq \mathbb{R} \times \mathbb{R}$
Output: a sequence of distributions $D_1, D_2, \ldots, D_k$

1  $S^y \leftarrow$ sorted sequence $\{y_i\}_{i=1}^{n}$ order by $y_i$ ascending;
2  $y\text{-split} \leftarrow \emptyset$;
3  $y\text{-split} \leftarrow V\text{-Clustering}(S^y, \delta_v, y\text{-split})$;
4  $C = \{c_1, c_2, \ldots, c_m\} \leftarrow \text{Convert}(S^y, y\text{-split})$;
    /* Convert $S^y$ into clusters according to $y\text{-split}$ */
5  $S^{xc} \leftarrow \text{sort } \{(x_i, c(y_i))_{i=1}^{n}\}$ order by $x_i$ ascending;
    /* $c(y_i) \in C$ is the cluster of $y_i$ */
6  $x\text{-split} \leftarrow \emptyset$;
7  $x\text{-split} \leftarrow E\text{-Clustering}(S^{xc}, \delta_e, x\text{-split})$;
    /* Divide x-axis into several slots */
8  for $i \leftarrow 1$ to $|x\text{-split}|$ do
9     $D_i \leftarrow \text{ComputeDistribution}(S^{xc}, i, x\text{-split})$;
     /* Compute the distribution of slot $i$ */
10  return $D = \{D_1, D_2, \ldots, D_k\}$;
Mining Taxi Drivers’ Knowledge

- Learning travel time distributions for each landmark edge
  - Traffic patterns vary in time on an edge
  - Different edges have different distributions

C) Distributions of travel time
Using these notations, we have the initial states $f_s(1)$ and $f_e(1)$ as follows:

$$
\begin{align*}
  f_s(1) &= T(q_s, r_1.e, r_1.s) + t_{es}(1) \\
  f_e(1) &= T(q_s, r_1.s, r_1.e) + t_{se}(1)
\end{align*}
$$

As shown in Figure 11 (B), let $T_{se}^i = T(r_{i}.s, r_{i+1}.e, r_{i+1}.s)$ denote the time of the fastest route (using speed constraint in real road network) which starts from point $r_i.s$ and ends at point $r_{i+1}.e$ without crossing $r_{i+1}.s$ in road network $G_r$. Then $T_{ee}^i, T_{ss}^i, T_{es}^i$ can be similarly defined. Now we have the state transition equations:

$$
\begin{align*}
  f_s(i+1) &= \min\{f_s(i) + T_{se}^i, f_e(i) + T_{ee}^i\} + t_{es}(i+1) \\
  f_e(i+1) &= \min\{f_s(i) + T_{ss}^i, f_e(i) + T_{es}^i\} + t_{se}(i+1)
\end{align*}
$$

After $f_s(n)$ and $f_e(n)$ are computed, the total travel time for the optimal route in the real road network is:

$$
\min\{f_s(n) + T(r_n.s, q_d, r_n.e), f_e(n) + T(r_n.e, q_d, r_n.s)\}$$
Reported by MIT Technology Review Twice, featured once
If a figure is worth of thousands of words, what does an animate deserve?
Before Presentation – Slides

• **Insight**
  – ‘Why’ is more important than ‘how’
  – Insight is the soul of research inspiring people

• The majority of audiences did not do what you did

• Make your slides interesting and informative
  – Using images, animations, videos
  – Endow colors with semantic meanings
GPS trajectories of 33,000 taxis in 2009, 2010, and 2011
Heat Maps of Beijing (2011)
Motivation and Challenges

• POIs indicate the function

But not enough
– Compound
– Quality

• Human mobility
  – Differentiate between POIs of the same category
  – Indicate the function of a region
Motivation

- Taxi drivers are **experienced** drivers
- GPS-equipped taxis are **mobile sensors**
- GPS logs imply the **drive behavior** of a user
Before Presentation – Slides

Results

• Positive (✓)
  – Selected quantitative results
  – Highlights
  – Find out interesting stories
  – Explain why

• Inappropriate (✗)
  – No quantitative results
  – Many charts and tables
  – Just curves
Results

• More effective
  • 60-70% of the routes suggested by our method are faster than Bing and Google Maps.
  • Over 50% of the routes are 20+% faster than Bing and Google.
  • On average, we save 5 minutes per 30 minutes driving trip.

• More efficient
Results

Land use planning (2002-2010)

Results of 2011
Before a Presentation

Before
- Create slides
- Rehearsal

During
- Advertising
- Delivery
- Interaction
- Q&A

After
- Meetings
Before a Presentation - Rehearsal

• Go through it yourself many times
  – In your mind (before getting up)
  – When taking a shower (about 15min)
  – Recording your presentation with a phone (15 min)

• Introduce it to your friends informally
• Present the slide in your team
• Try to deliver it in a large group of people
• Collect feedback and revise your slides
Before Presentation

• Advertising
  – I will give a talk about ‘urban computing’ at 3pm in room....

• Repeat your name and affiliation
During a Presentation

Before
- Create slides
- Rehearsal
- Advertising

During
- Delivery
- Interaction

After
- Q&A
- Meetings

Meetings
During a Presentation

• Voice

• Postures/Gesture

• Eye contact

• Interaction
During a Presentation

- Voice is even more important than the content
  - Loud
  - Confident
  - Slow
- Grammar is not a big deal
- People hope you can succeed
During a Presentation

• Gestures
  – Facing audiences rather than screens or your laptop
  – Never read your slides or notes
  – A certain movement
During a Presentation

• Eye contact
  – Overview audiences (but not stare at)
  – Look at the top of people’s head if nervous (only for junior students)

• Interactions
  – Propose some questions to audiences
  – Sometimes make a joke
After a Presentation

Before
- Rehearsal
- Advertising
- Create slides

During
- Delivery
- Interaction
- Q&A

After
- Meetings
After a Presentation

• Q&A
  – Repeat questions
  – Thanks for proposing the questions
  – Be polite, not too defensive
  – We can talk it offline

• Having questions is not bad
After a Presentation

• Communicate with people
  – Collecting feedback
  – Identify collaboration opportunities
  – Leave your contact information, e.g., business cards
Take Away Messages

• Presentation is an opportunity
  – to promote your research
  – Connect to community

• Deliver stories and insights with lively slides

• Voice is more important than content

• Keep eye contact with audiences always
Thanks!

Yu Zheng, Web Search & Mining Group
http://research.microsoft.com/en-us/people/yuzheng/