Puzzle--How Long Was He Walking?

Every day, Jack arrives at the train station from work at 5 pm.

His wife leaves home in her car to meet him there at exactly 5 pm, and drives him home. One day, Jack gets to the station an hour early, and starts walking home, until his wife meets him on the road. They get home 30 minutes earlier than usual. How long was he walking?

Distances are unspecified. Speeds are unspecified, but constant.

Give a number which represents the answer in minutes.

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Solution

The best way to think about this problem is to consider it from the perspective of the wife. Her round trip was decreased by 30 minutes, which means each leg of her trip was decreased by 15 minutes. Therefore, she met Jack at 4:45pm.

Since Jack started walking at 4:00pm, he must have been walking for 45 minutes.

AAAI 2019 conference

CHEN Wang

AAAI-19 Outstanding Paper Award

- [How to Combine Tree-Search Methods in Reinforcement Learning]

Yonathan Efroni *
Technion, Israel

Gal Dalal
Technion, Israel

Bruno Scherrer
INRIA, Villers les Nancy, France

Shie Mannor
Technion, Israel

- Honorable Mention: [Solving Imperfect-Information Games via Discounted Regret Minimization]

Noam Brown
Computer Science Department
Carnegie Mellon University
noamb@cs.cmu.edu

Tuomas Sandholm
Computer Science Department
Carnegie Mellon University
sandholm@cs.cmu.edu

AAAI-19 Outstanding Student Paper Award

- Zero Shot Learning for Code Education: Rubric Sampling with Deep Learning Inference

Mike Wu[1], Milan Mosse[1], Noah Goodman[1,2], Chris Piech[1]
[1] Department of Computer Science, Stanford University, Stanford, CA 94305
[2] Department of Psychology, Stanford University, Stanford, CA 94305
{wumike,mmosse19,ngoodman,piech}@stanford.edu

- Honorable Mention: Learning to Teach in Cooperative Multiagent Reinforcement Learning

Shayegan Omidshafiei[1,2] shayegan@mit.edu
Dong-Ki Kim[1,2] dkkim93@mit.edu
Miao Liu[2,3] miao.liu1@ibm.com
Gerald Tesauro[2,3] gtesauro@us.ibm.com
Matthew Riemer[2,3] mdriemer@us.ibm.com
Christopher Amato[4] camato@ccs.neu.edu
Murray Campbell[2,3] mcam@us.ibm.com
Jonathan P. How[1,2] jhow@mit.edu

[1]LIDS, MIT [2]MIT-IBM Watson AI Lab [3]IBM Research [4]CCIS, Northeastern University

AAAI-19 Tutorials

- [Tutorial Page]

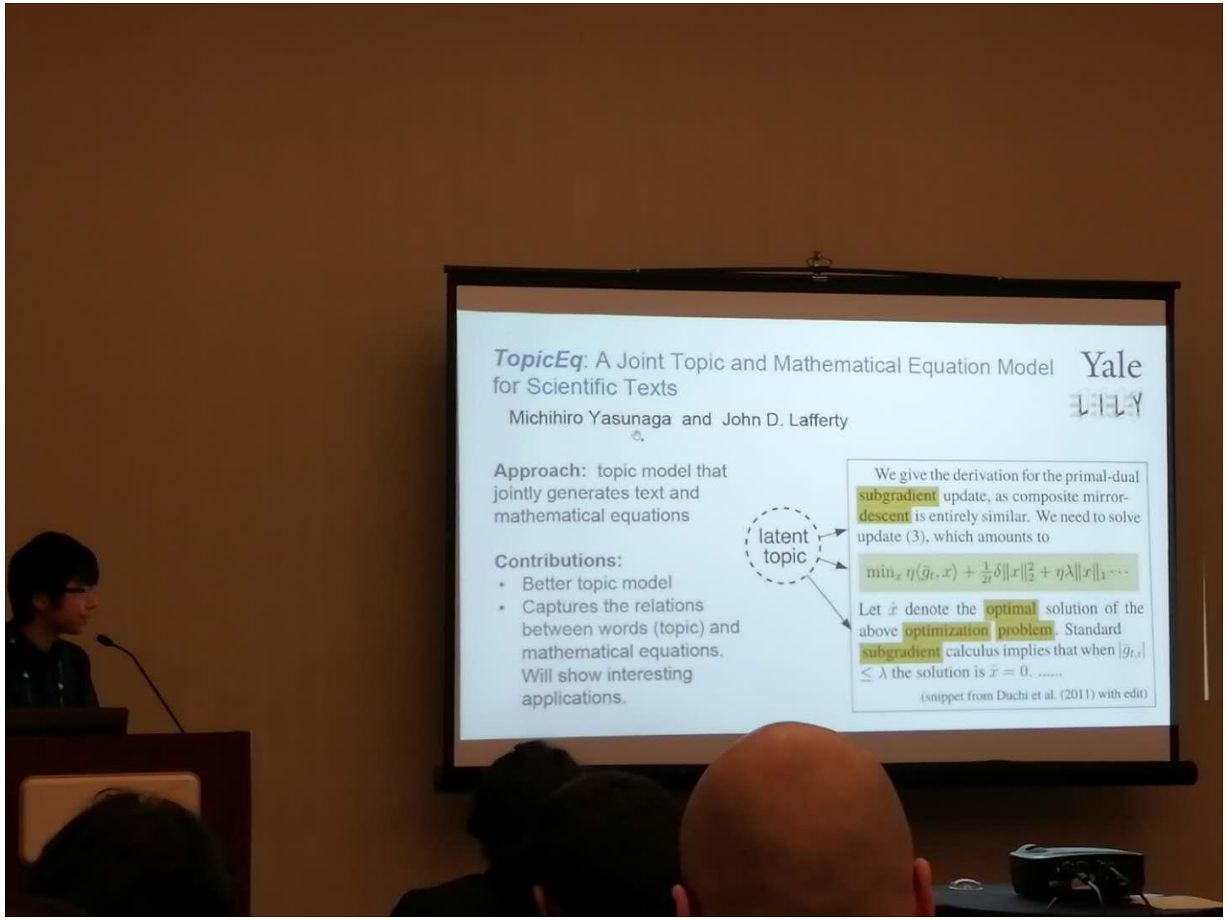
AAAI-19 Workshops

- Workshop Page

AAAI-19 Invited Talks

- [Invited Talk Page]

AAAI-19 Text Generation Papers



[TopicEq: A Joint Topic and Mathematical Equation Model for Scientific Texts]()

Black holes in Einstein gravity. As a warm-up exercise, in this section, we will briefly review the observation made by Padmanabhan [14] by generalizing his discussion to a more general spherically symmetric case. In Einstein's general relativity, the gravitational field equations are

$$G_{\mu\nu} = R_{\mu\nu} - \frac{1}{2}Rg_{\mu\nu} = 8\pi GT_{\mu\nu}$$

where $G_{\mu\nu}$ is Einstein tensor and $T_{\mu\nu}$ is the energy-momentum tensor of matter field. On the other hand, for a general static, spherically symmetric spacetime, its metric can be written down as ......

(snippet from Cai and Ohta (2010))

We give the derivation for the primal-dual subgradient update, as composite mirror-descent is entirely similar. We need to solve update (3), which amounts to

$$\min_x \eta\langle \bar{g}_t, x\rangle + \frac{1}{2t}\delta\|x\|_2^2 + \frac{1}{2t}\langle x, \mathrm{diag}(s_t)x\rangle + \eta\lambda\|x\|_1$$

Let $\hat{x}$ denote the optimal solution of the above optimization problem. Standard subgradient calculus implies that when $|\bar{g}_{t,i}| \leq \lambda$ the solution is $\hat{x} = 0$. Similarly, when $\bar{g}_{t,i} \leq -\lambda$, then $\hat{x} > 0$, the objective is differentiable, and the solution is obtained by setting the gradient to zero. ......

(snippet from Duchi et al. (2011))

Figure 1: The words in a given technical context often characterize the distinctive types of equations used, and vice versa. **Top** topic: Relativity; **bottom** topic: Optimization.

AAAI-19 Text Generation Papers

AAAI-19 Text Generation Papers

[CGMH: Constrained Sentence Generation by Metropolis-Hastings Sampling]()

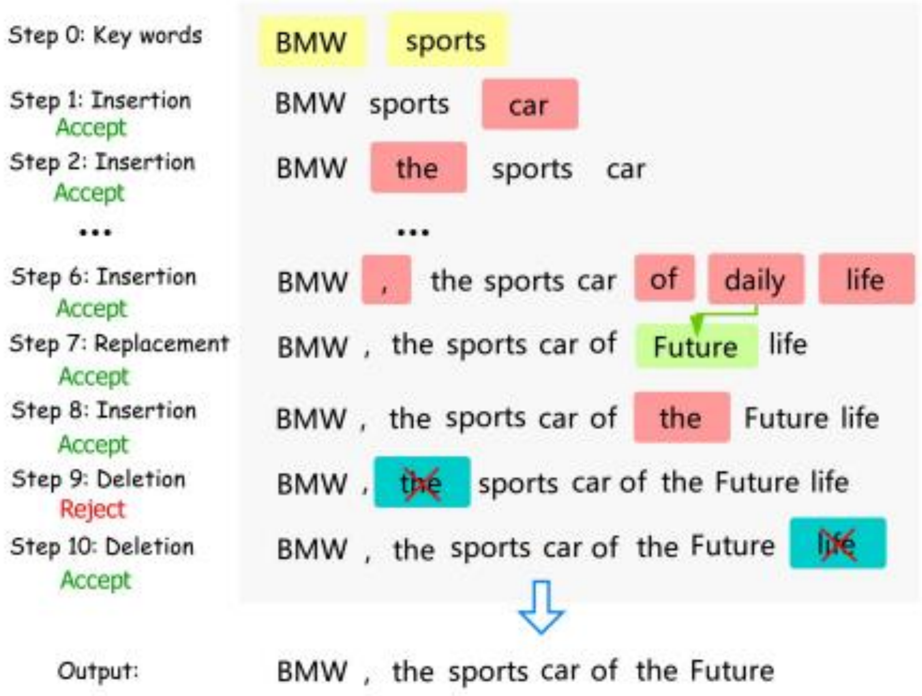
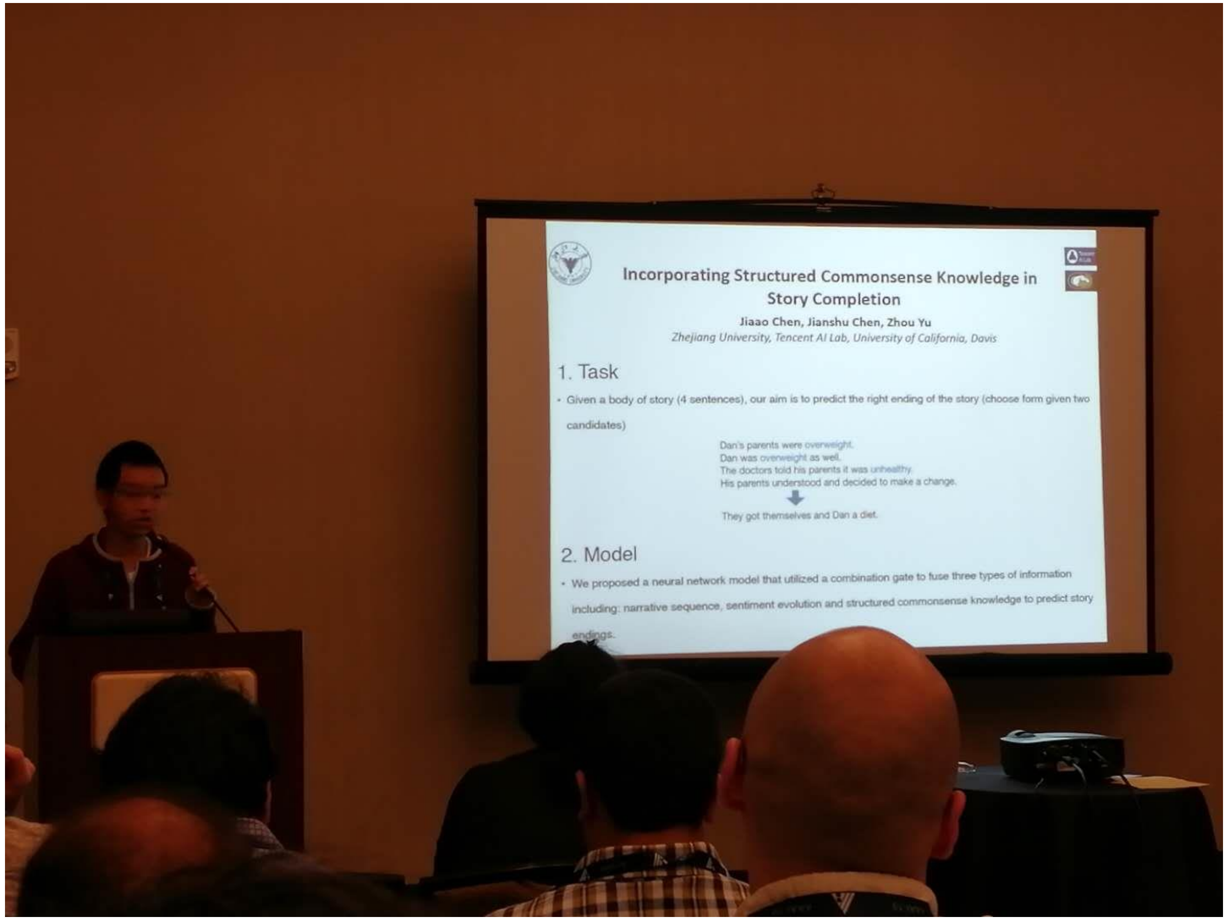
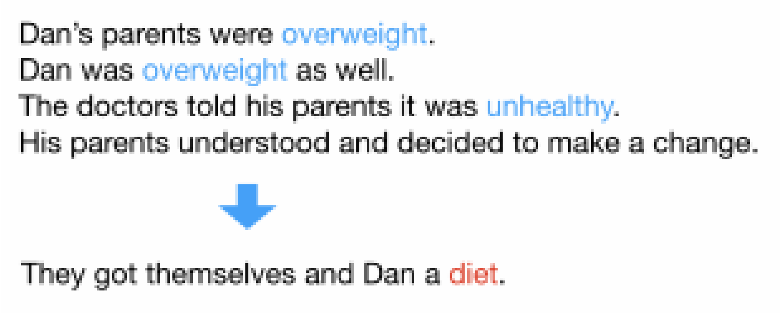


Figure 1: CGMH generates a sentence with the constraint of keyword inclusion. At each step, CGMH proposes a candidate modification of the sentence, which is accepted or rejected according to a certain acceptance rate.

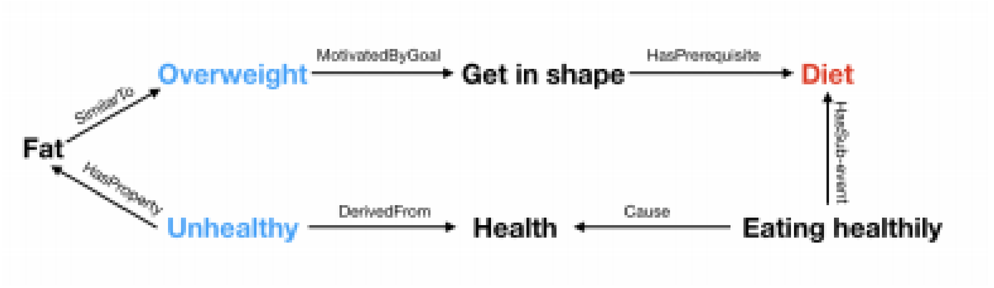
AAAI-19 Text Generation Papers



[Incorporating Structured Commonsense Knowledge in Story Completion]()



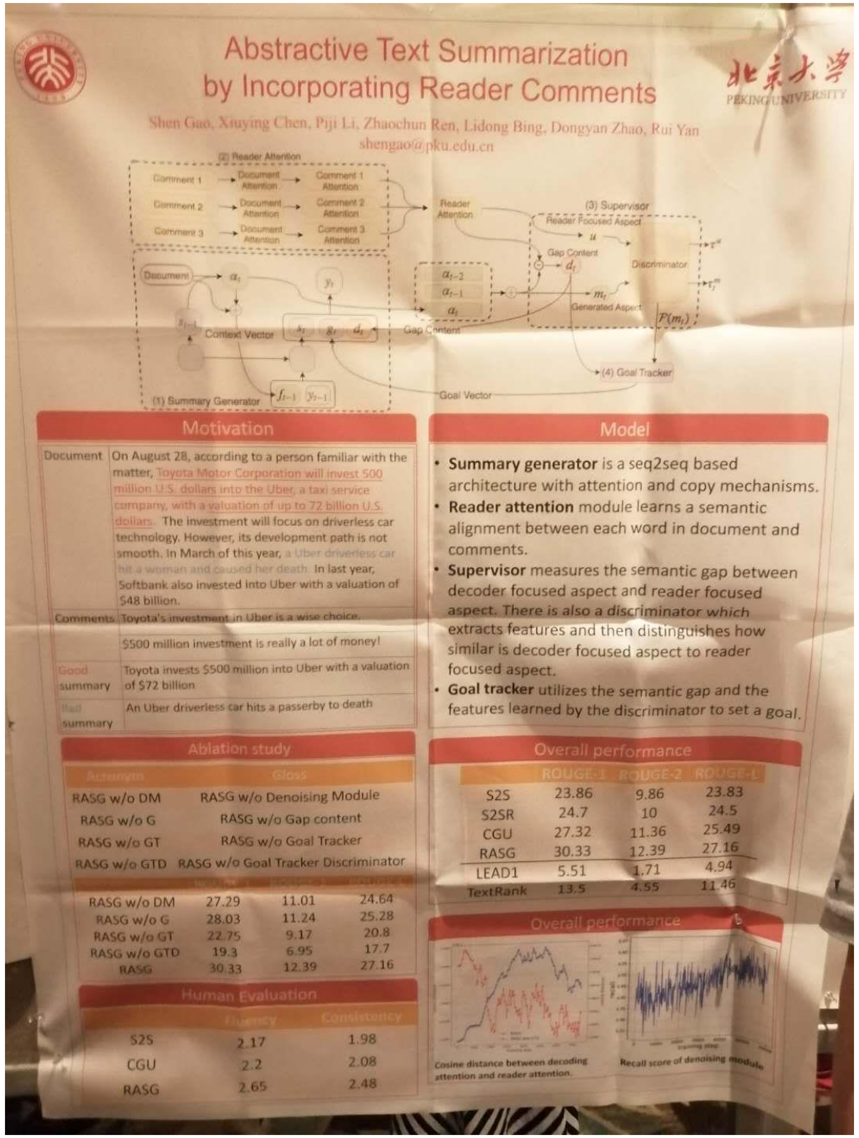
(a) An example story



(b) Clues in ConceptNet

Figure 1: (a) shows an example story from ROCStories dataset, words in colors are key-words. (b) shows the key-words and their relations in ConceptNet Knowledge Graph

AAAI-19 Summarization Papers

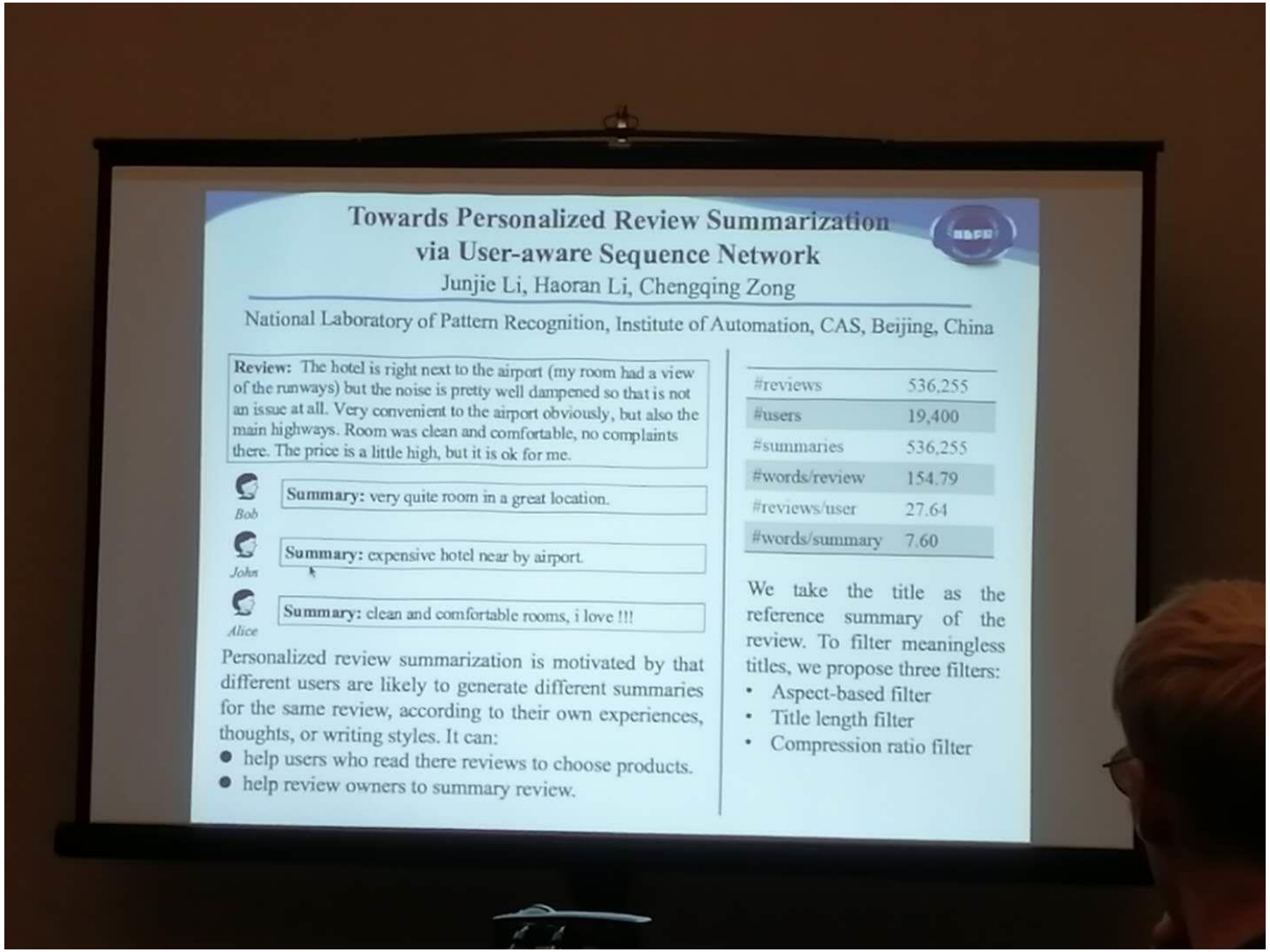


[Abstractive Text Summarization by Incorporating Reader Comments]

Table 1: Examples of the text summarization. The text in red denotes the focused aspect by the good summary, while the text in blue is described by the bad summary. The text with underline is the focused aspect by reader comments.

document	On August 28, according to a person familiar with the matter, Toyota Motor Corporation will invest 500 million U.S. dollars into the Uber, a taxi service company, with a valuation of up to 72 billion U.S. dollars. The investment will focus on driverless car technology. However, its development path is not smooth. In March of this year, a Uber driverless car hit a woman and caused her death. In last year, Softbank also invested into Uber with a valuation of $48 billion.
comments	Toyota's investment in Uber is a wise choice.
	$500 million investment is really a lot of money!
good summary	Toyota invests $500 million into Uber with a valuation of $72 billion
bad summary	An Uber driverless car hits a passerby to death

AAAI-19 Summarization Papers



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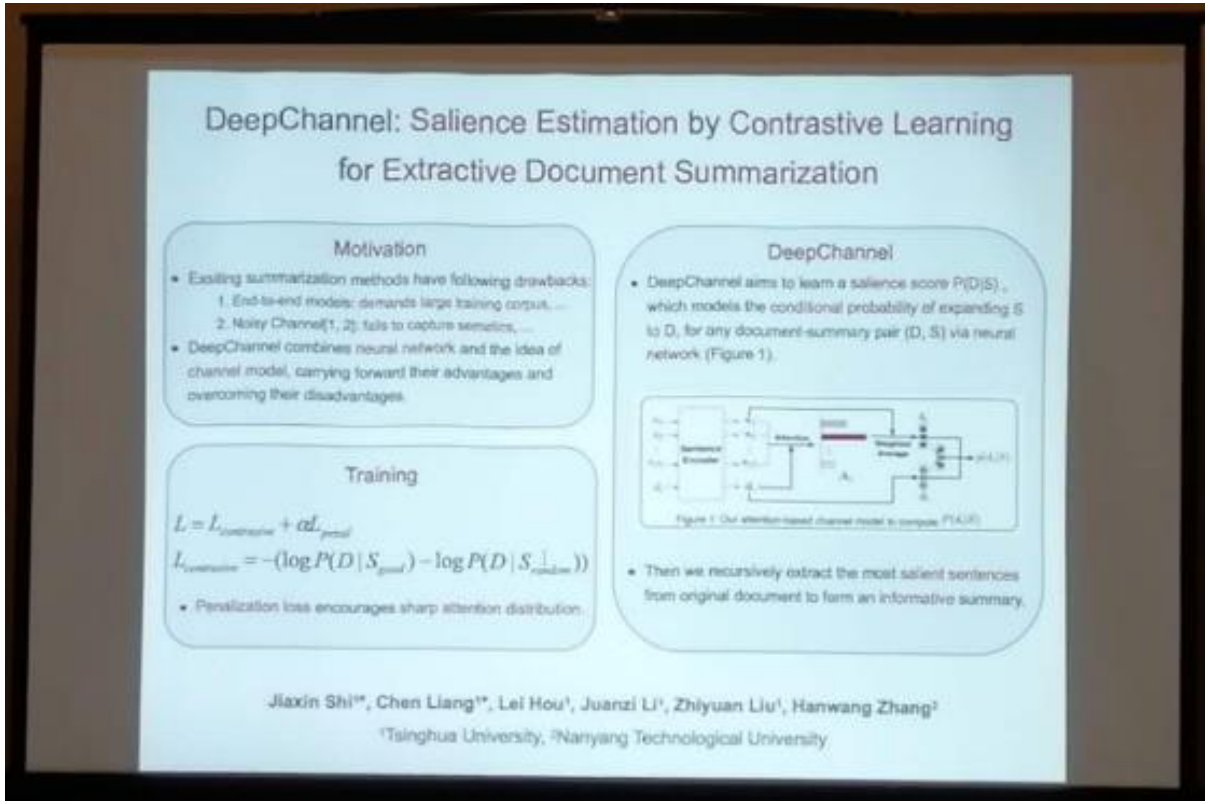


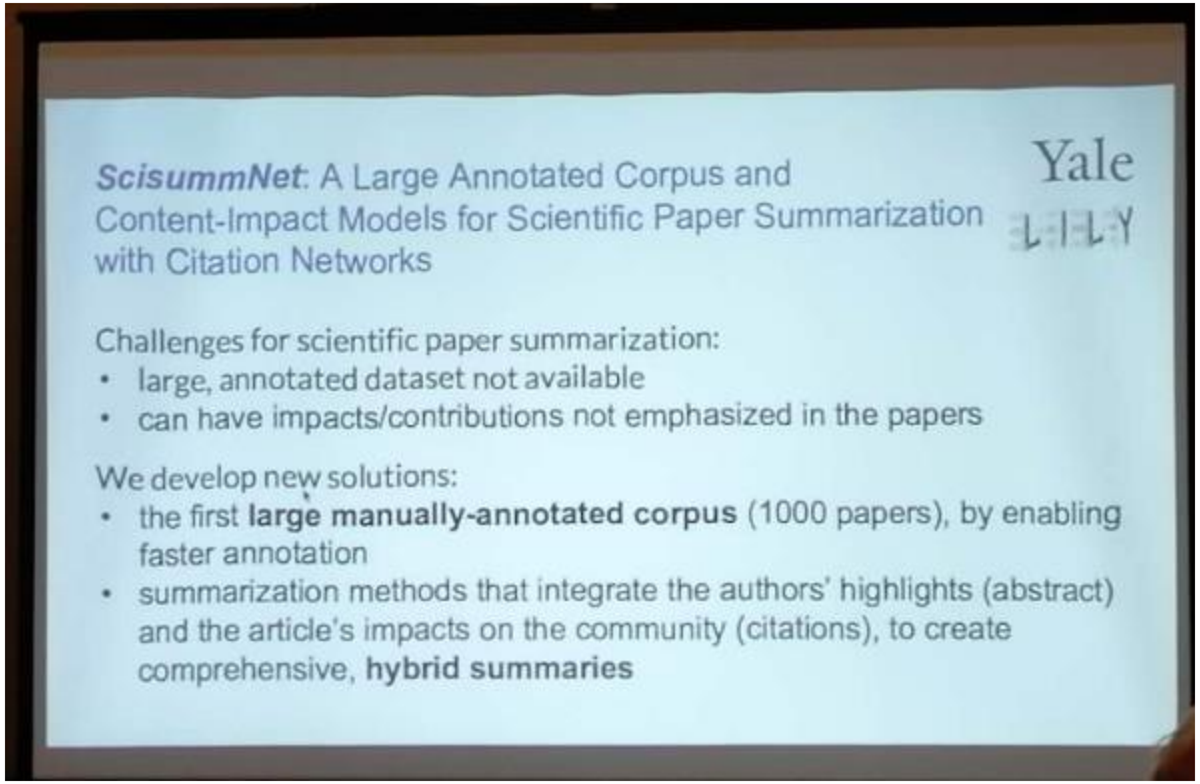
P(S|D) -> P(D|S)
Better Summarization Better Reconstruction

[DeepChannel: Salience Estimation by Contrastive Learning for Extractive Document Summarization]()

D: Rutgers University has banned fraternity and sorority house parties at its main campus in New Brunswick, New Jersey, for the rest of the spring semester after several alcohol-related problems this school year, including the death of a student.
S_1: Rutgers University has banned fraternity and sorority house parties because of an alcohol-related accident that led to the death of a student.
S_2: The main campus of Rutgers University is located in New Brunswick, New Jersey.

Table 1: Examples of different degrees of salience. We consider $P(D|S_1) > P(D|S_2)$ because S_1 contains more important information compared with S_2 and thus is more salient for yielding D.

AAAI-19 Summarization Papers



[ScisummNet: A Large Annotated Corpus and Content-Impact Models for Scientific Paper Summarization with Citation Networks]

Paper ID: P06-1005
Paper Title: Bootstrapping Path-Based Pronoun Resolution

Abstract:
We present an approach to pronoun resolution based on syntactic paths. Through a simple bootstrapping procedure, we learn the likelihood of coreference between a pronoun and a candidate noun based on the path in the parse tree between the two entities. This path information enables us to handle previously challenging resolution instances, and also robustly addresses traditional syntactic coreference constraints. Highly coreferent paths also allow mining of precise probabilistic gender/number information. We combine statistical knowledge with well known features in a Support Vector Machine pronoun resolution classifier. Significant gains in performance are observed on several datasets. **(mostly about technique)**

Citation Sentences:
Bergsma and Lin (2006) determine the like-lihood of coreference along the syntactic path connecting a pronoun to a possible antecedent, by looking at the distribution of the path in text. **(about technique)**

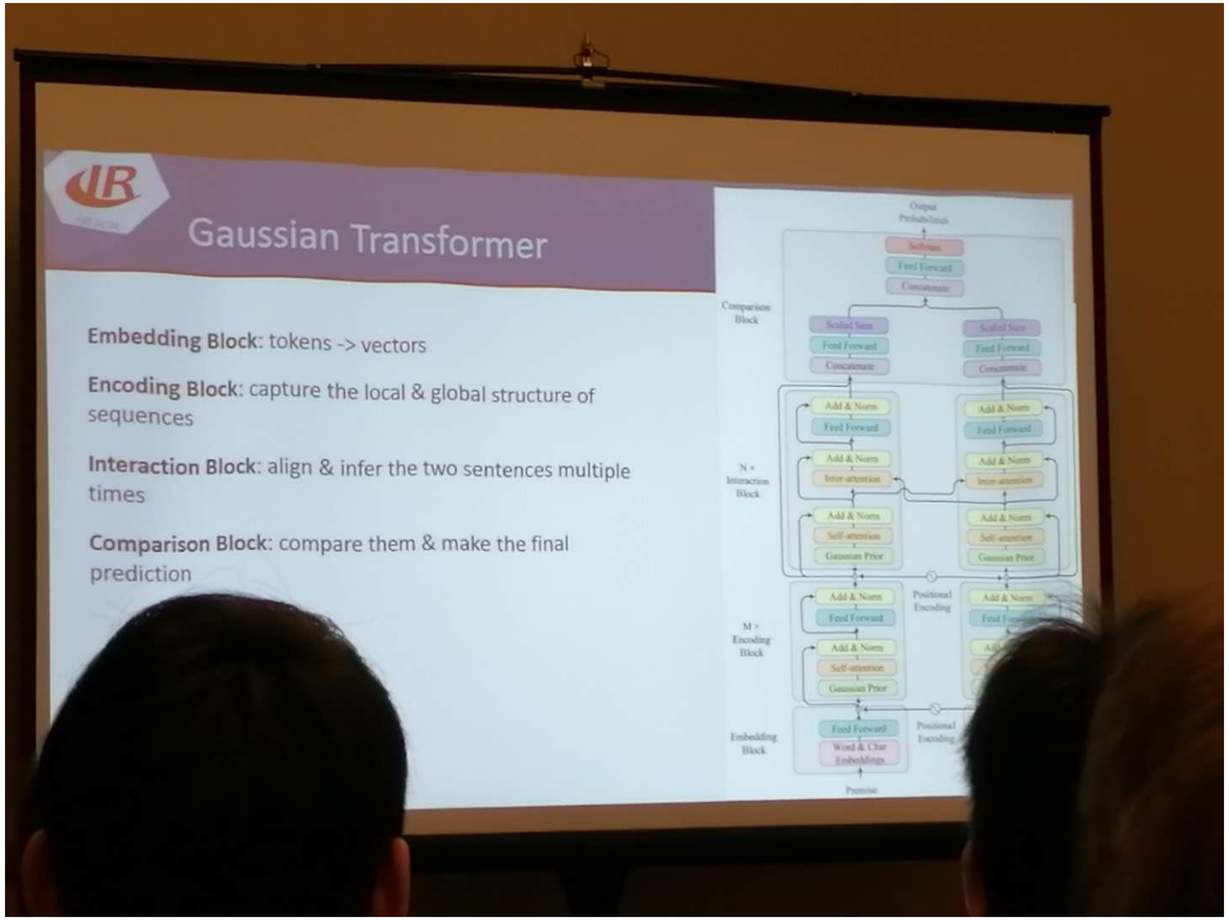
We use the approach of Bergsma and Lin (2006), both because it achieves state-of-the-art gender classification performance, and because a database of the obtained noun genders is available online. **(about both technique and dataset)**

For the gender task that we study in our experiments, we acquire class instances by filtering the dataset of nouns and their genders created by Bergsma and Lin (2006). **(about dataset)**

Figure 1: Abstract and citations of (Bergsma and Lin 2006). The abstract emphasizes their pronoun resolution techniques and improved performance; the citation sentences reveal that their noun gender dataset is also a major contribution to the research community, but it is not covered in the abstract.

AAAI-19 Transformer Papers

[Gaussian Transformer: a Lightweight Approach for Natural Language Inference]



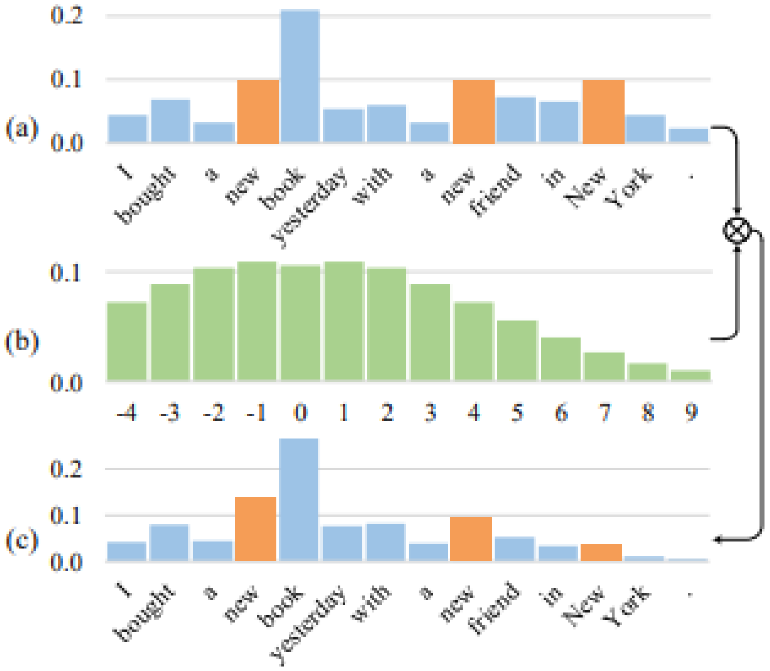
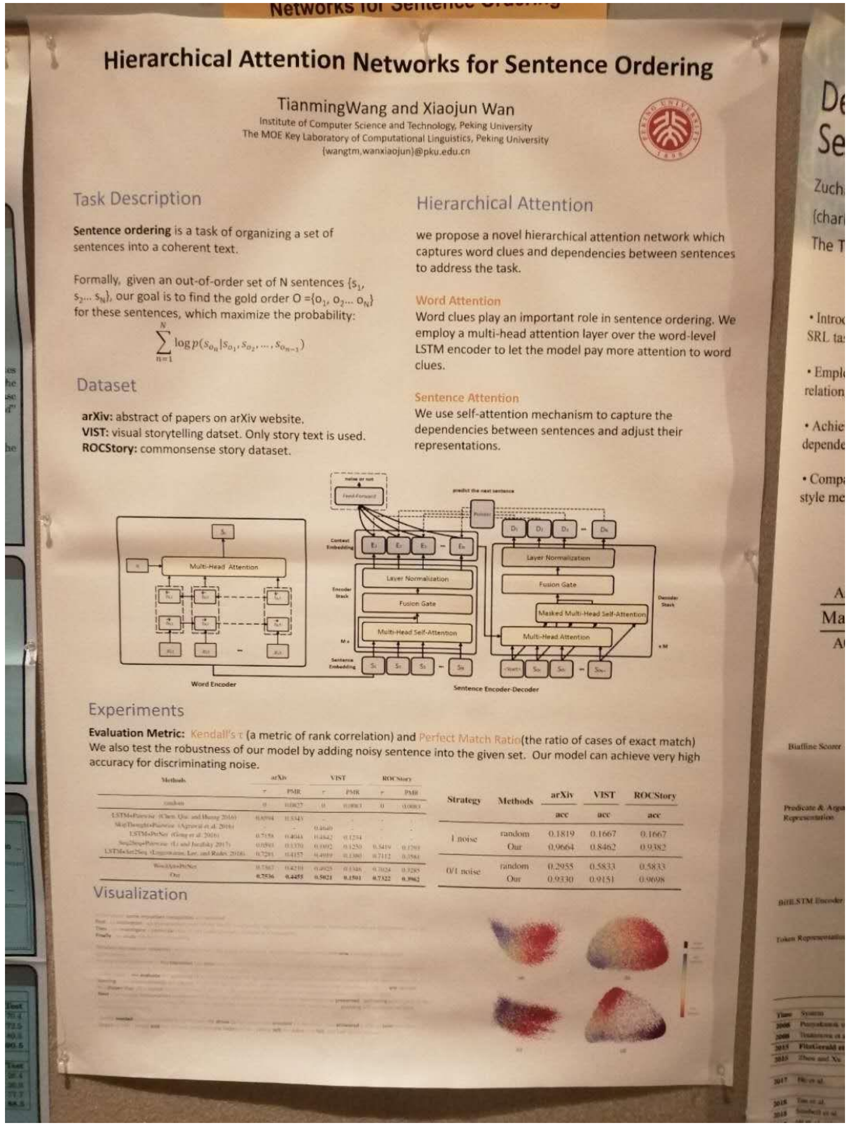


Figure 1: Probabilities of each token attending to current central word 'book': (a) illustrates the vanilla self-attention, where the word 'new' appeared in different positions obtain the same importance, which is inconsistent with our experience that adjacent words matters; (b) depicts a Gaussian distribution over distance (x-axis) that encourages focusing on neighboring tokens; (c) draws the attention corrected by the Gaussian prior, where the first 'new' is more important.

AAAI-19 Transformer Papers



Using transformer to encode a set of sentences ---- removing the position encoding

AAAI-19 Transformer Papers

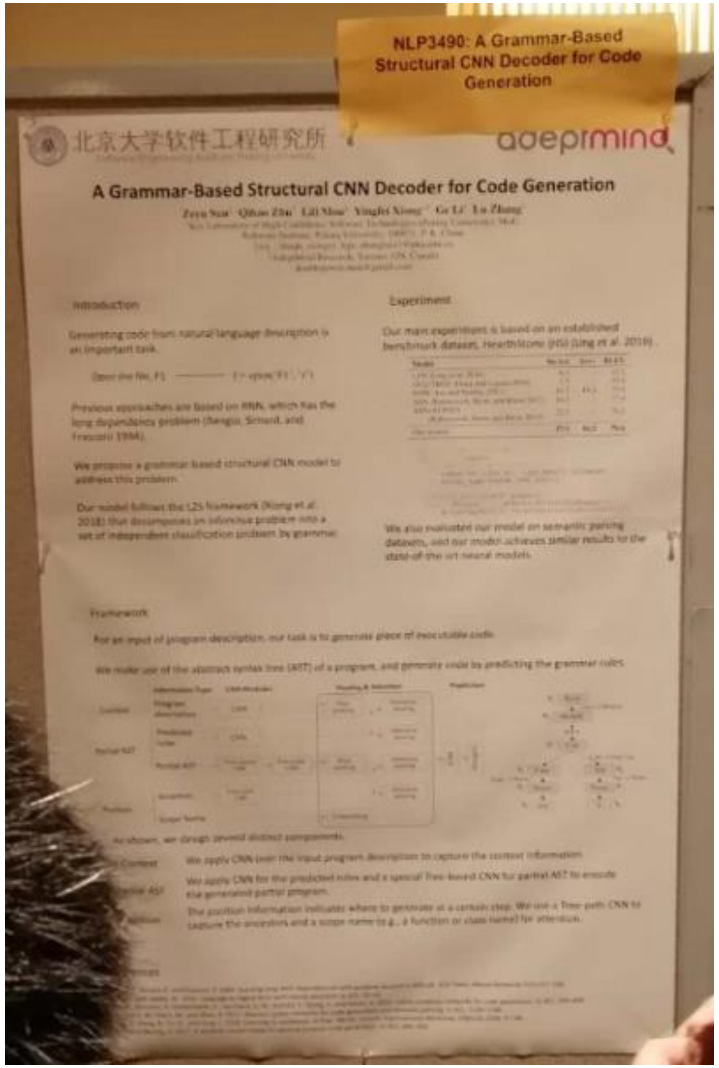
- Neural Speech Synthesis with Transformer Network

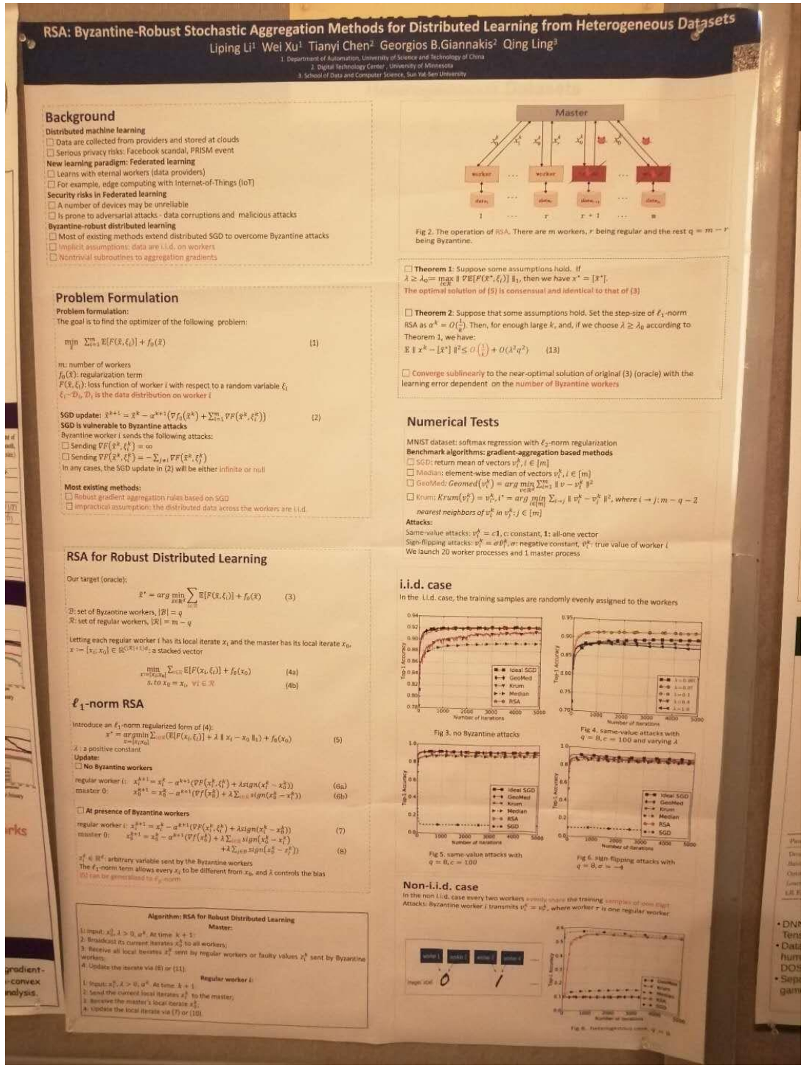
Naihan Li*[1,4], Shujie Liu[2], Yanqing Liu[3], Sheng Zhao[3], Ming Liu[1,4], Ming Zhou[2]
[1]University of Electronic Science and Technology of China
[2]Microsoft Research Asia
[3]Microsoft STC Asia
[4]CETC Big Data Research Institute Co.,Ltd, Guizhou, China

- Tied Transformers: Neural Machine Translation with Shared Encoder and Decoder

[1]Yingce Xia, [2]Tianyu He, [1]Xu Tan, [1]Fei Tian, [3]Di He and **[1]Tao Qin**
[1] Microsoft Research, Beijing, China
[2]University of Science and Technology of China, Anhui, China
[3]Key Laboratory of Machine Perception, MOE, School of EECS, Peking University
{yinxia,xuta,fetia,taoqin}@microsoft.com; hetianyu@mail.ustc.edu.cn; di_he@pku.edu.cn

AAAI-19 Other Papers





AAAI-19 Internship

- Singapore, Research Institute (similar to MSRA)

Steven Hoi
Contact: Wechat

?

Report to

Richard Socher

- Tokyo, …
- Amazon, Tong Zhao, …

AAAI-19 游玩篇

Diamond Head

Pearl Harbor

Hanauma Bay

… Beach