

知识表示与获取

——博士的成长之路：迷茫与坚持

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科研伊始

进组第一天

几个G的文献

十几本**砖头厚**的书



科研伊始



科研伊始

第一个工作，**半年**的讨论与实验
投稿前发现实验有问题，**撤稿**！

心好疼...



科研选择

优先毕业 or 高水平研究？
遵循内心！



选择热门的方向



选择冷门的方向



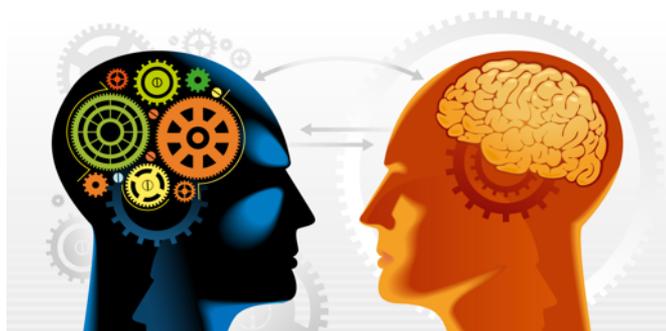
科研选择



- 选题来源
 - 论文阅读
 - 项目驱动
 - 导师指定
- 重要问题、重大挑战
- 自己感兴趣（重要！）
- 即将成为热门（optional）

研究背景

- 自然语言理解是人工智能基础理论体系的核心之一
- 自然语言理解尚处于**匹配**阶段，无法做到**理解**



自然语言理解

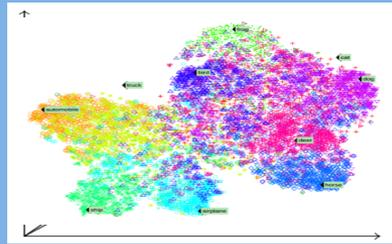
世界知识

语言知识

利用知识是真正实现自然语言理解的关键要素

研究方向

基于知识的自然语言理解



知识表示



知识获取



知识应用

统一知识工程框架

下一个故事：毕设

朋友



我



坚持



量子位

坚持

两小时醒一次改代码、记录实验结果



如何进行Idea选择与实验？

论文写作

- 推荐刘洋老师总结

- http://www.thunlp.org/~ly/talks/cwmt14_tut.pdf

- 论文写作十分重要

- 摘要、介绍、方法、实验、总结

- 全文一致性

你以为审稿人应该是这样审稿的：

审稿人一定是专家，无所不知。打印出来，仔细研读揣摩数天，对于看不懂的地方反复推敲。即使你的英文写得极其糟糕、即使你的文章组织很混乱、即使你的表述很难看懂，审稿人花费了大量的时间后终于看懂了，他认为你的工作是有意义的，决定给你个border line或以上的分数。

审稿人实际上往往是这样审稿的：

他不一定是专家，一直忙于其他事，在deadline到来之前一天要完成n篇。审稿时他往往先看题目、摘要，扫一下introduction（知道你做什么），然后直接翻到最后找核心实验结果（做得好不好），然后基本确定录还是不录（也许只用5分钟！）。如果决定录，剩下就是写些赞美的话，指出些次要的小毛病。如果决定拒，下面的过程就是细看中间部分找理由拒了。

实验设计

- Baseline选择
 - 公认的标准数据和state-of-the-art系统
- 辅助实验
 - 参数的影响（开发集）
 - 对应Motivation\创新点
 - Case Study
- 主实验（测试集）
 - 证明显著超过baseline

论文例子

- TransR工作(AAAI 2015)
 - 考虑知识图谱中的复杂关系
 - 辅助实验：在1-n、n-1、n-n关系上的效果

Table 3: Evaluation results on FB15K by mapping properties of relations. (%)

Tasks	Predicting Head(Hits@10)				Predicting Tail(Hits@10)			
	1-to-1	1-to-N	N-to-1	N-to-N	1-to-1	1-to-N	N-to-1	N-to-N
Unstructured (Bordes et al. 2012)	34.5	2.5	6.1	6.6	34.3	4.2	1.9	6.6
SE (Bordes et al. 2011)	35.6	62.6	17.2	37.5	34.9	14.6	68.3	41.3
SME (linear) (Bordes et al. 2012)	35.1	53.7	19.0	40.3	32.7	14.9	61.6	43.3
SME (bilinear) (Bordes et al. 2012)	30.9	69.6	19.9	38.6	28.2	13.1	76.0	41.8
TransE (Bordes et al. 2013)	43.7	65.7	18.2	47.2	43.7	19.7	66.7	50.0
TransH (unif) (Wang et al. 2014)	66.7	81.7	30.2	57.4	63.7	30.1	83.2	60.8
TransH (bern) (Wang et al. 2014)	66.8	87.6	28.7	64.5	65.5	39.8	83.3	67.2
TransR (unif)	76.9	77.9	38.1	66.9	76.2	38.4	76.2	69.1
TransR (bern)	78.8	89.2	34.1	69.2	79.2	37.4	90.4	72.1
CTransR (unif)	78.6	77.8	36.4	68.0	77.4	37.8	78.0	70.3
CTransR (bern)	81.5	89.0	34.7	71.2	80.8	38.6	90.1	73.8

论文例子

- NRE (ACL2016)
 - 通过选择注意力机制过滤噪音
 - 辅助实验：在不同句子数量上的效果

Table 2: P@N for relation extraction in the entity pairs with different number of sentences

Test Settings	One				Two				All			
	100	200	300	Mean	100	200	300	Mean	100	200	300	Mean
CNN+ONE	68.3	60.7	53.8	60.9	70.3	62.7	55.8	62.9	67.3	64.7	58.1	63.4
+AVE	75.2	67.2	58.8	67.1	68.3	63.2	60.5	64.0	64.4	60.2	60.1	60.4
+ATT	76.2	65.2	60.8	67.4	76.2	65.7	62.1	68.0	76.2	68.6	59.8	68.2
PCNN+ONE	73.3	64.8	56.8	65.0	70.3	67.2	63.1	66.9	72.3	69.7	64.1	68.7
+AVE	71.3	63.7	57.8	64.3	73.3	65.2	62.1	66.9	73.3	66.7	62.8	67.6
+ATT	73.3	69.2	60.8	67.8	77.2	71.6	66.1	71.6	76.2	73.1	67.4	72.2

论文例子

- NRE (ACL2016)
 - 通过选择注意力机制过滤噪音
 - Case Study : 选择注意力机制是否正确给出权重

Relation	employer_of
Low	When Howard Stern was preparing to take his talk show to Sirius Satellite Radio , following his former boss, Mel Karmazin , Mr. Hollander argued that ...
High	Mel Karmazin , the chief executive of Sirius Satellite Radio , made a lot of phone calls ...
Relation	place_of_birth
Low	Ernst Haefliger , a Swiss tenor who ... roles , died on Saturday in Davos , Switzerland, where he maintained a second home.
High	Ernst Haefliger was born in Davos on July 6, 1919, and studied at the Wettinger Seminary ...

论文投稿 (IJCAI 2015)

- 教训
 - 截稿前2天完成论文，错误百出
 - 论文被拒
- 建议：提前完成，反复修改

The readability of the paper could be improved. Here are some examples of some typos and sentences which could be rephrased:

- Abstract, "PTransE has two key challenges" --> "PTransE addresses two key challenges"
- Introduction, "that, neural" --> "that neural"
- Introduction, "has issues when modeling" --> "cannot model" (or explain under which circumstances)
- Introduction, "Despite of" --> "Despite"
- Introduction, "flaw that, they only take" --> "flaw, that of only taking"
- Introduction, "indicating the complicated relationships" --> "indicating complex relationships"
- Introduction, "there are usually a relation" --> "there is usually a relation"
- Introduction, "relation paths should also be represented in the low" --> "they should also be represented in a low"
- Introduction, "in the both" --> "in both"
- Section 2.2, "we assume a certain [...] the resource will flow [...] path p and we use" --> "that a certain [...] and such resource will flow [...] path p. We use"
- Section 2.4, "and define the energy" --> "and defined the energy"

某一审稿人给出review意见

论文投稿 (EMNLP2015)

- 吸取教训
 - 论文提前一个月完成
 - 咨询大家的意见

你主要看红色的即可。当然abstract也重写了一下。你的这个建议很好。我们改一下。:) 20150527 20:03 GMT+08:00 建议在实验...

建议在实验部分, 以及related work中, 说一下与 andrew组cal论文的区别 Original Messages From: > Sent Time:20150527 19:4...

建议在实验部分, 以及related work中, 说一下与 andrew组cal论文的区别 Original Messages From: > Sent Time:20150527 19:4...

根据你提的疑问和建议, 我们对论文做了修改, 如附件所示, 你看看是否更清楚了些呢? :) 其中优化目标部分的确有些问题, 所以做了比较大改动。20150526 22:04 G...

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谢谢 的建议和提问啊。衍凯看一下, 我们明天好好改一下。敬礼! 20150526 21:07 GMT+08:00 抱歉, 前几天有几个项...

谢谢 的建议和提问啊。衍凯看一下, 我们明天好好改一下。敬礼! 20150526 21:07 GMT+08:00 抱歉, 前几天有几个项...

Hi 这是我们投IJCAI被拒的论文, 拟修改后转投EMNLP, 请你批评指正, 提出一些修改意见哈。我们对这个解决方案还不是特别满意, 希望能继续改进, 咱们也可...

和某老师沟通论文撰写情况

论文投稿 (ACL 2018)

- 和实验室师弟合作投稿，文献调研没做仔细
- 教训
 - 被直接指出缺少关键方法比较
 - 论文被拒

Reviewer1 : 3

- 总结：
 - 建立在之前的为未知单语词推荐义原的基础上
 - do not take into account vast parts of the literature on bilingual mapping and on the injection of external knowledge into the embeddings. ?
- 弱点
 - **没有和 retro-fitting/post-specialisation by Faruqui 比较**
(2015NAACL Best Paper)
 - 没有展示该方法的extrinsic evaluation，即其他NLP应用上的效果

当时总结的审稿意见

积累

- 关注所有人工智能领域最新工作
 - 领域综述
 - 经典工作的相关工作
 - NLP、CV、ML等重要会议 (ACL, NIPS, KDD, ICML…)
 - 每天阅读arxiv论文

Computation and Language

Authors and titles for recent submissions

- [Wed, 20 Jun 2018](#)
- [Tue, 19 Jun 2018](#)
- [Mon, 18 Jun 2018](#)
- [Fri, 15 Jun 2018](#)
- [Thu, 14 Jun 2018](#)

[total of 85 entries: 1-25 | 26-50 | 51-75 | 76-85]
[showing 25 entries per page: [fewer](#) | [more](#) | [all](#)]

Wed, 20 Jun 2018

[1] [arXiv:1806.07346](#) [[pdf](#)]

A Scalable Machine Learning Approach for Inferring Probabilistic US-LI-RADS Categorization

[Imon Banerjee](#), [Hailey H. Choi](#), [Terry Desser](#), [Daniel L. Rubin](#)

Comments: AMIA Annual Symposium 2018 (accepted)

Subjects: **Computation and Language** (cs.CL); Artificial Intelligence (cs.AI)

[2] [arXiv:1806.07304](#) [[pdf](#), [other](#)]

Dynamic Multi-Level Multi-Task Learning for Sentence Simplification

[Han Guo](#), [Ramakanth Pasunuru](#), [Mohit Bansal](#)

Comments: COLING 2018 (15 pages)

Subjects: **Computation and Language** (cs.CL); Artificial Intelligence (cs.AI); Learning (cs.LG)

[3] [arXiv:1806.07186](#) [[pdf](#), [ps](#), [other](#)]

Recurrent DNNs and its Ensembles on the TIMIT Phone Recognition Task

[Jan Vanek](#), [Josef Michalek](#), [Josef Psutka](#)

Comments: Submitted to SPECOM 2018, 20th International Conference on Speech and Computer

开源代码

thunlp

Repositories [New repository](#)

Find a repository...

- thunlp/EntityDuetNeuralRanking
- thunlp/attribute_charge
- thunlp/NRLPapers
- thunlp/OpenNE
- thunlp/KRLPapers
- thunlp/OpenKE
- thunlp/AMNRE
- thunlp/CAIL2018
- thunlp/CAIL
- thunlp/PathNRE
- thunlp/NRE
- thunlp/Character-enhanced-Se...
- thunlp/OpenQA
- thunlp/CKRL
- thunlp/TensorFlow-TransX
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- thunlp/JointNRE
- thunlp/THUCTC
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priester forked priester/TensorFlow-NRE from thunlp/TensorFlow-NRE 17 minutes ago

thunlp/TensorFlow-NRE

★ Star

Neural Relation Extraction implemented with LSTM in TensorFlow

Python 485 stars Updated Jun 20



HAWLYQ opened an issue in thunlp/attribute_charge 5 hours ago

what does "NA" mean ? #1

Excuse me, what does "NA" mean in your charge attributes data? "unrelated" or "not sure"



zhuxf0407 forked zhuxf0407/NSC from thunlp/NSC 6 hours ago

thunlp/NSC

★ Unstar

Neural Sentiment Classification

Python 218 stars Updated Jun 18



jingyihiter opened an issue in thunlp/CAIL2018 20 hours ago

麻烦在python3.5中安装一下dill #13

Q&A

谢谢！