

Presentation 3: Neural Network Doc Summarization

CS4624 Multimedia, Hypertext, and Information Access

Team: Junjie Cheng

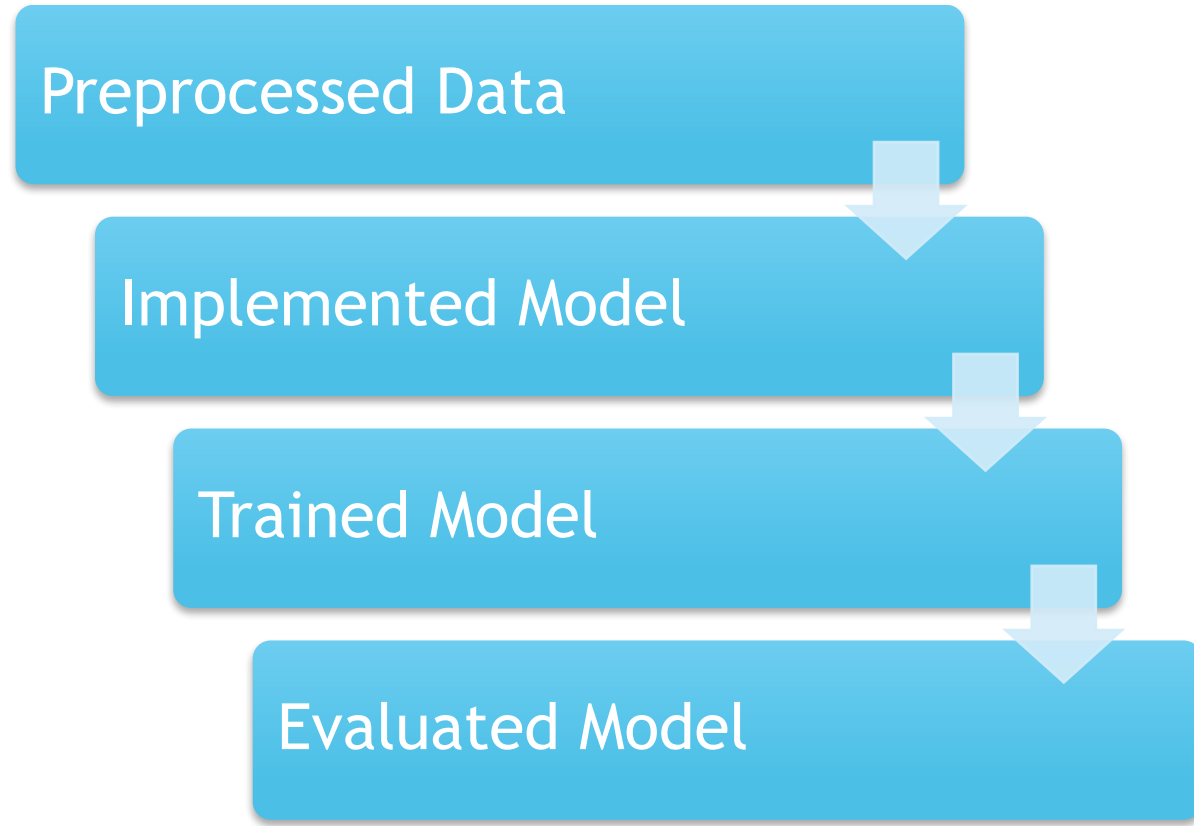
Instructor: Dr. Edward A. Fox

Virginia Tech, Blacksburg VA 24061, Apr 3rd, 2018

Outline

- ▶ Project Progress
- ▶ Challenges and Solutions
- ▶ Future Plan
- ▶ Acknowledgements

Project Progress



Result from the Previous Model

- ['<SOS>', 'the', 'former', 'prime', 'minister', 'was', 'found', 'in', 'the', 'first', 'time',
of', 'the', 'u.s.', '.', 'the', 'the', 'the', 'the', 'the', 'the', 'the', 'the', 'the',
'the', 'the', 'the', 'the', 'the', 'the', 'the', 'the', 'island', 'was', 'the', 'first', 'time',
of', 'the', 'iss', ',', 'the', 'the', 'the', 'the', 'the', 'study', 'were', 'the', 'first', 'time',
of', 'the', 'iss', ',', 'the', 'study', 'to', 'the', 'iss', ',', 'the', 'study', 'to', 'the', 'iss', '.',
'the', 'the', 'the', 'the', 'the', 'the', 'a38', 'was', 'the', 'first', 'time', 'of', 'the', 'the',
'a38', 'of', 'the', 'a38', ',', 'the', 'the', 'a38', 'of', 'the', 'a38', ',', 'the', 'a38', 'of',
'the', 'a38', ',', 'the', 'a38', 'of', 'the', 'a38', ',', 'the', 'a38', 'of', 'the', 'a38', ',', 'the',
'a38', 'of', 'the', 'a38', ',', 'the', 'a38', 'of', 'the', 'a38', ',', 'the', 'a38', 'of', 'the',
'a38', ',', 'the', 'a38', 'of', 'the', 'a38', ',', 'the', 'a38', 'of', 'the', 'a38', ',', 'the',
'a38', 'of', 'the', 'a38', ',', 'the', 'a38', 'of', 'the', 'a38', ',', 'the', 'a38', 'of', 'the',
'a38', 'of', 'the', 'a38', ',', 'the', 'a38', 'of', 'the', 'a38', '.', '<EOS>']

Project Progress

Regenerated Dataset



Rewrote Data Loader



Implemented Attention Model



Trained and Evaluated Model

Regenerated Dataset

- ▶ Articles that are less than 400 words.
- ▶ Abstracts that are less than 100 words.
- ▶ 30,000 samples in the training set now.

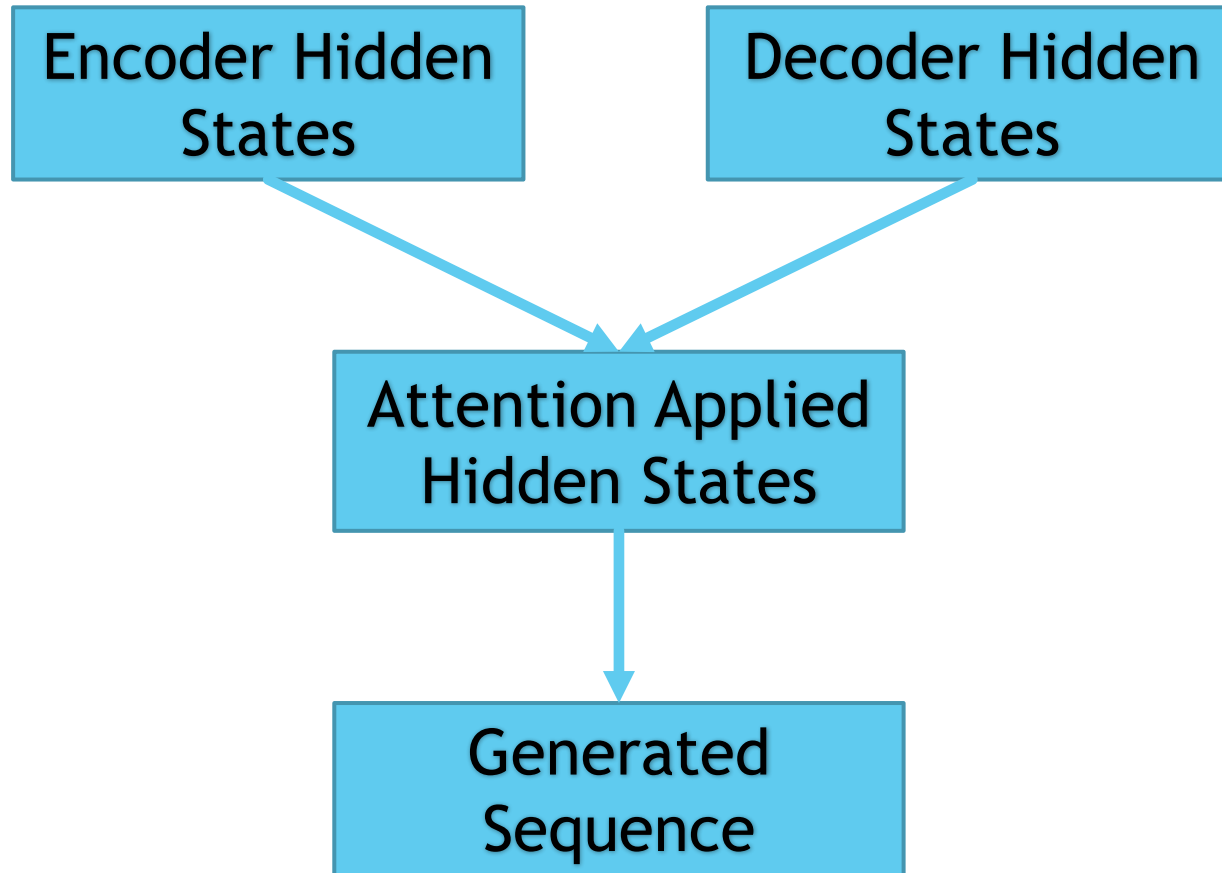
Rewrote Data Loader

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,3379,104,5,3379,2545,93,26,170,9,135,33,60,1473,1
,257,10,154,12,1431,35,44092,5,3
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567,18326,75,380,110,5,4,432,226,830,191,9,1202,22
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15,900,60,1442,107,1398,6,140,10630,11,280,179,56,
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7,8222,24,7757,5028,468,5,1443,59,1136,10,67,3597,
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114,30567,210,5,4,210,41,19497,10,2499,3705,36,788
,3597,7,4,244,1380,6665,4051,1699,5,3
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5,63,128,5,1223,9,4974,106,25,24,68,1725,176,1434,
```

Implemented Attention Model



Challenges and Solutions

- ▶ Exploding gradient
 - ▶ Gradient clip
- ▶ Loss doesn't decrease
 - ▶ Dynamic learning rate
- ▶ Model doesn't fit result
 - ▶ Model layers initialization

Challenges Remaining

- ▶ Why the outputs of the model are not correct?

Output from Attention Model

[illegible]

Future Plan

- ▶ Learn from other people's models

CNN/Daily Mail

	Rouge-1	Rouge-2	Rouge-L
Attention LSTM	30.25	12.41	22.93
Pointer-Generator	34.00	14.70	36.57
Transformer	23.90	5.85	17.36
lead-3 baseline	40.34	17.70	36.57

Acknowledgements

► Client: Yufeng Ma

