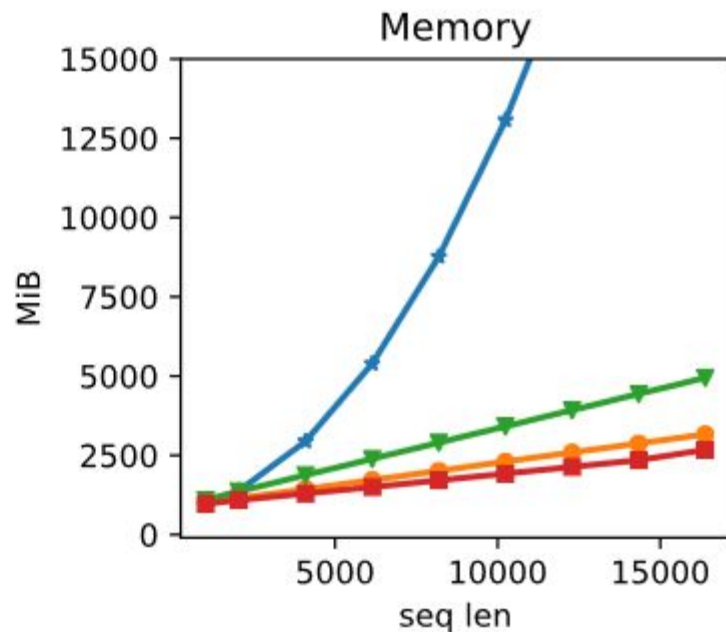
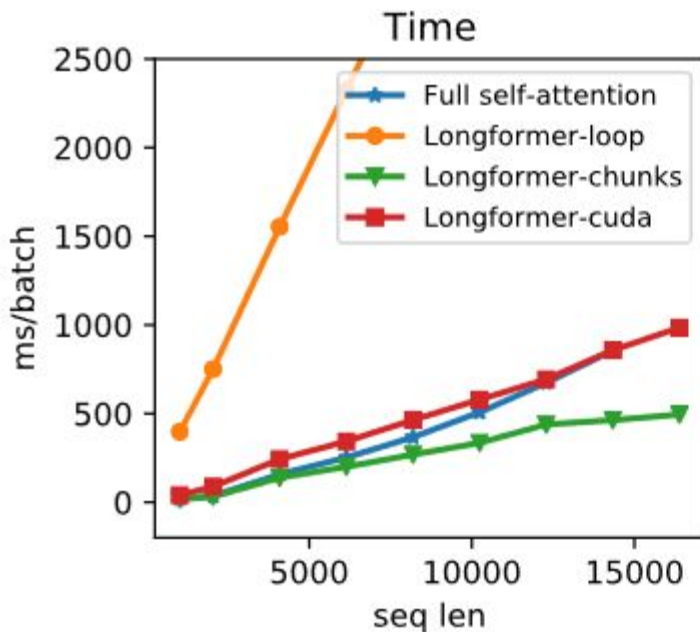


Comparison of Abstractive Summarization Input Reduction Methods

W266: Final Project Presentation

Nicholas Schantz

Introduction and Background



Methods

Baseline: uses entire article

Lead3: uses first 3 sentences

EveryOther: uses every other sentence

Random50: uses random 50% of sentences

BegMidEnd50: 50% of sentences sampled from beginning middle and end of article

BegMidEnd75: 75% of sentences sampled from beginning middle and end of article

BegMidEnd25: 25% of sentences sampled from beginning middle and end of article

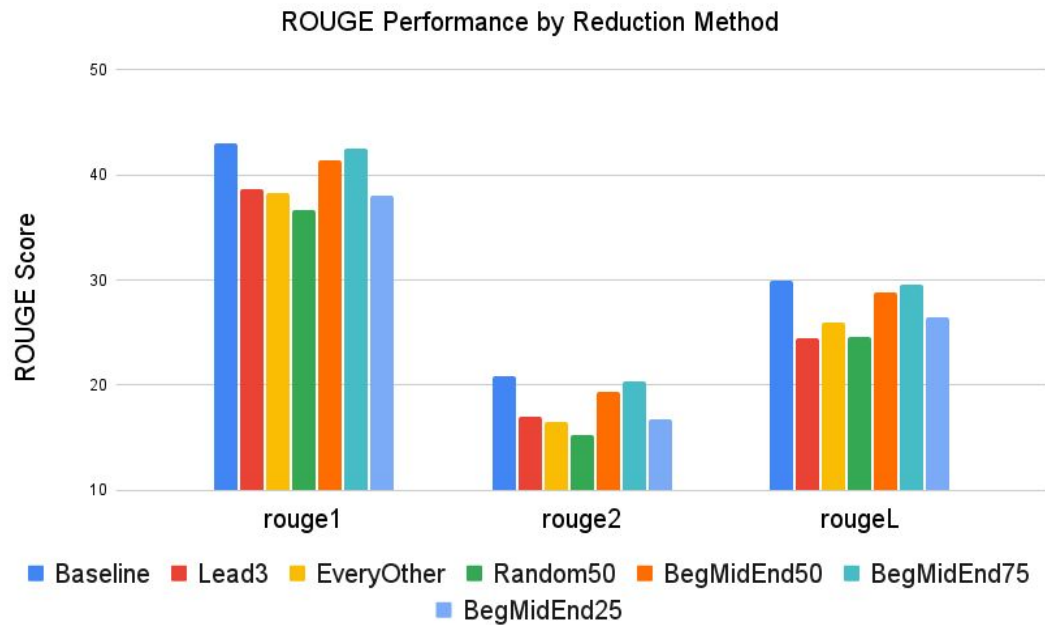
Methods - Metrics

ROUGE

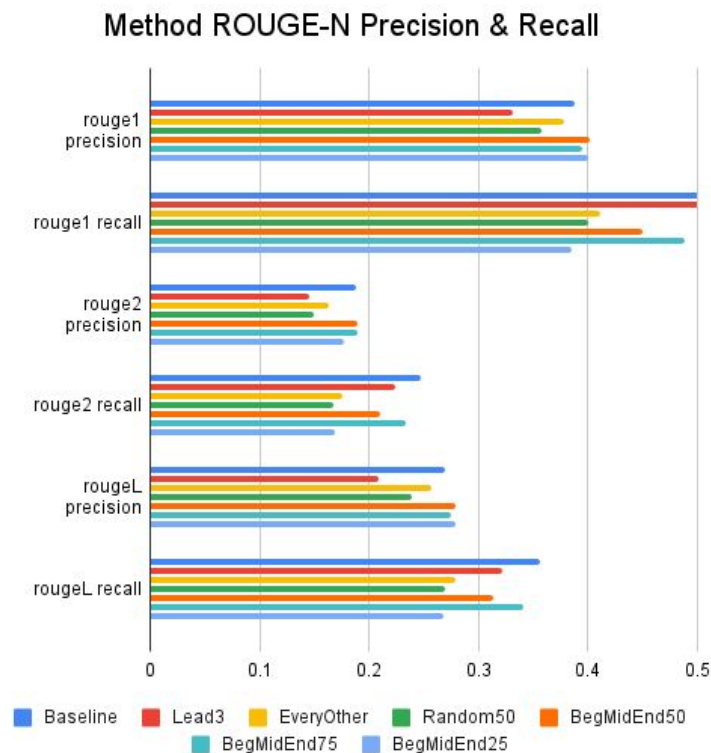
- ROUGE-1
- ROUGE-2
- ROUGE-L

$$\begin{aligned} \text{Coherence} &= \frac{1}{n-1} \sum_{i=1}^{n-1} \text{Sim}(s_i, s_{i+1}), \\ \text{Sim}(s_i, s_{i+1}) &= \lambda \times \text{NESim}(s_i, s_{i+1}) \\ &\quad + (1 - \lambda) \times \text{CosSim}(s_i, s_{i+1}) \\ \text{NESim}(s_i, s_{i+1}) &= \frac{|NE(s_i) \cap NE(s_{i+1})|}{\min(|NE(s_i)|, |NE(s_{i+1})|)} \\ \text{CosSim}(s_i, s_{i+1}) &= \frac{s_i \bullet s_{i+1}}{\|s_i\| \|s_{i+1}\|} \end{aligned}$$

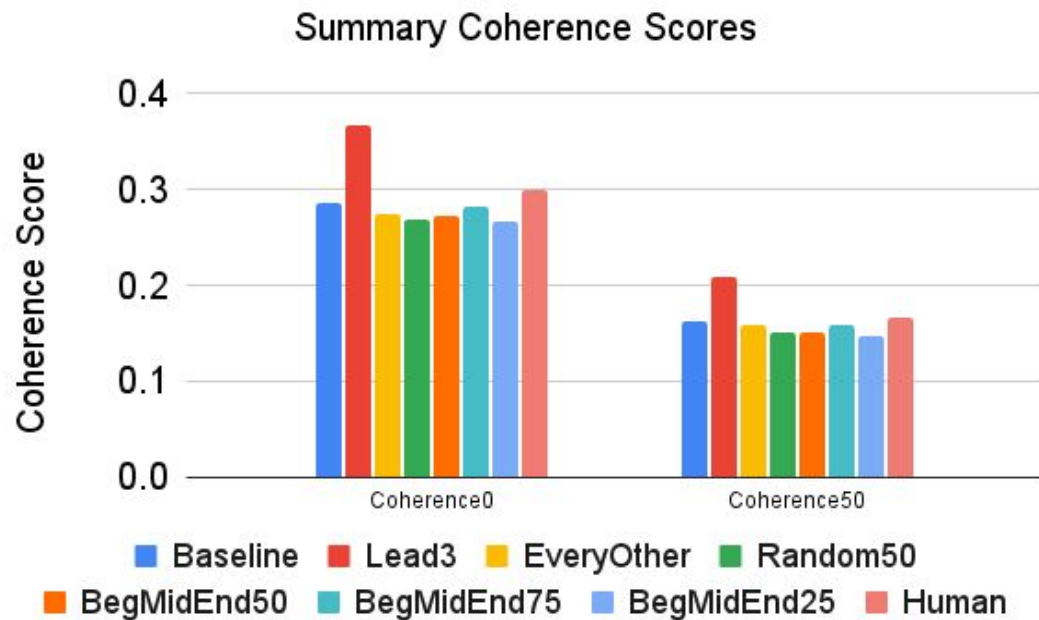
Results



Results

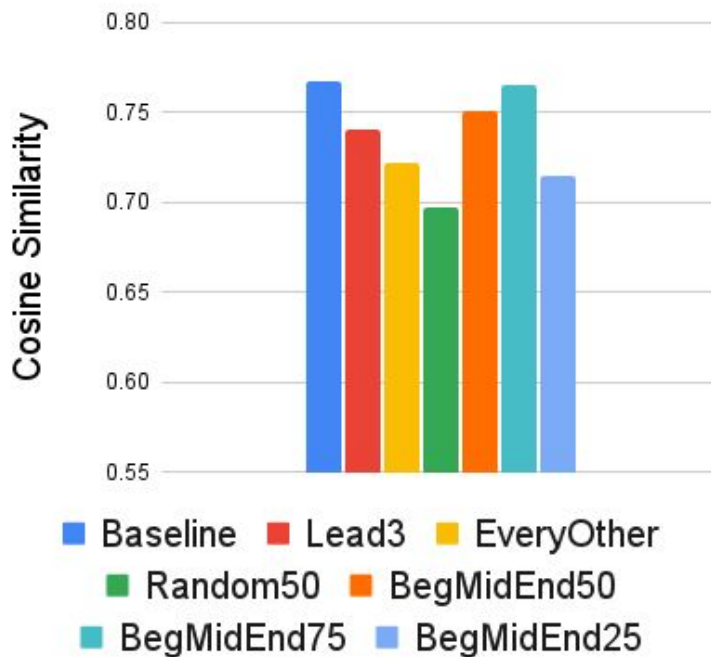


Results



Results

Machine-Generated Summary Cosine Similarity to Human-Generated Summary



Example

Jordan Spieth secured his first ever major title at Augusta National on Sunday . The 21-year-old won the 79th Masters at Augusta on Sunday afternoon . The US Open champion was crowned Masters champion at the end of the tournament . Spieth has been criticised for his lack of experience in the game . - BASELINE

Sporting America fell in love with him because of his skill under pressure and his sheer bravura. The rest of America fell in love because of what happened after the winning putt was holed. The 79th Masters attracted massive ratings in the USA and there is no surprise in that.- LEAD3

Jordan Spieth secured his first major title at Augusta National on Sunday . The 21-year-old won the 79th Masters on 14-under-par after finishing tied for second . Spieth has killed forever the idea that you have to have a cold heart and a ruthless edge to be a winner . Along with Rory McIlroy, Spieth is going to carry it for the next decade and what an exciting time it promises to be . - EO

The rest of America fell in love because of what happened after the winning putt was holed . Spieth just felt he was ready and it was not long before he was showing why . Sporting America fell into love with him because of his skill under pressure and his sheer bravura . RANDOM50

Jordan Spieth secured his first ever major title at Augusta National on Sunday . The 21-year-old won the 79th Masters with a holed putt to holed the 13-under par on the 18th green . Spieth embraced his family after the win and gave an unscripted speech to the crowd . Politicians who try so hard to be popular could learn much from Spieth . The game is very fortunate to have a man like McIlroy, who is four years older and less than a pro for less than two years .- BME50

Jordan Spieth won the Masters at Augusta National on Sunday . The 21-year-old is now No 2 in the world behind Rory McIlroy . Spieth has banked more than \$13million (£8.86m) on the PGA Tour in 18 months .- BME25

Jordan Spieth won his maiden major at the age of 21 at Augusta . The 79th Masters attracted massive television ratings in the USA . Spieth went back onto the 18th green to formally acknowledge the crowd . Jack Nicklaus and Phil Mickelson are among those to pay tribute to Spieth . - HUMAN

Future Work

- Faster prototyping
- Improved production performance