



Overview

- Problem:**
- Focus on machine reading comprehension style question answering
 - Build a system to provide a correct answer to an answerable question by selecting a segment of text from corresponding paragraph, and abstain to unanswerable question

- Our contributions:**
- Build a system which combines BiDAF, Self-attention and Encoder Blocks
 - Achieve EM score 65.65, F1 68.79 on dev set

Data & Analysis

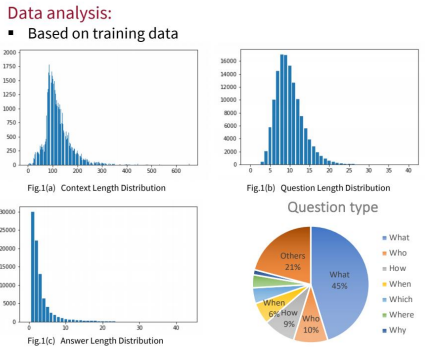
- Dataset:**
- Use SQuAD 2.0, a new reading comprehension dataset that combines 100,000 answerable questions from SQuAD 1.1 with 53,775 unanswerable questions about same paragraph
 - Custom training data (130319 examples), dev data (6078 examples)

Example:

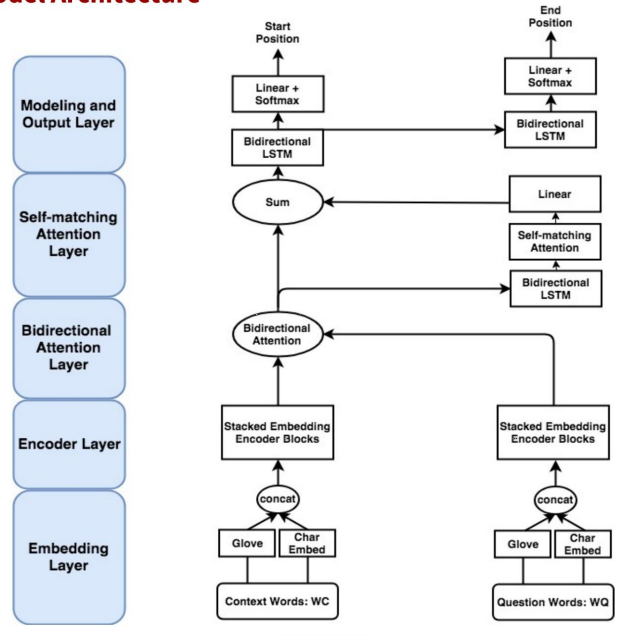
Question: Why was Tesla returned to Gospic?

Context paragraph: On 24 March 1879, Tesla was returned to Gospic under police guard for **not having a residence permit**. On 17 April 1879, Milutin Tesla died at the age of 60 after contracting an unspecified illness (although some sources say that he died of a stroke). During that year, Tesla taught a large class of students in his old school, Higher Real Gymnasium, in Gospic.

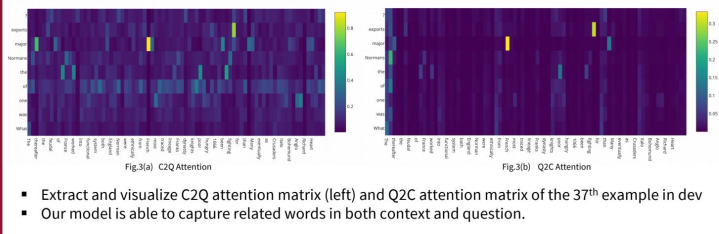
Answer: not having a residence permit



Model Architecture



Attention Visualization



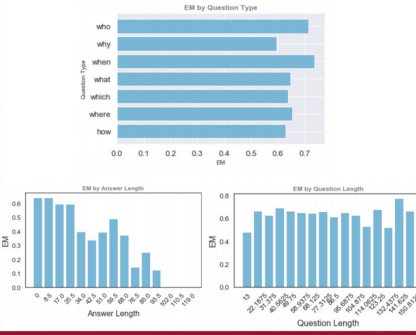
Result

	EM	F1	AvNA
BiDAF baseline	57.82	61.03	67.75
BiDAF + Char Embed	60.09	63.29	69.92
Our Single Model	62.91	66.38	73.04
Our Ensemble Model	65.65	68.79	74.01

- Exact Match (EM):** a binary measure (true/false) of whether the prediction matches the ground truth answer
- F1:** harmonic mean of precision and recall
- Answer vs. No Answer (AvNA):** classification accuracy
- This is our results evaluated on dev set

Error Analysis

Our model works well at locating relevant words in the context based on the question, but struggles on modeling long-term dependencies and questions that require logical reasoning.



Reference

- Pranav Rajpurkar, Robin Jia, and Percy Liang. Know what you don't know: Unanswerable questions for squad. arXiv preprint arXiv:1806.03822, 2018.
- Seo, Minjoon, et al. "Bidirectional attention flow for machine comprehension." arXiv preprint arXiv:1611.01603 (2016).