Interactive Open-Domain Story Generation
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Motivation
- Can human-machine collaboration improve open-domain neural story generation?
- Can it improve specific story aspects, as well as overall quality?

Previous approaches to human-machine collaboration offer limited interaction; they focus on turn-taking and do not enable iteration. We design a system that enables human interaction at multiple stages of the process: story-planning, story-writing, diversity controls*, and model-selection.

System Details
We adapt the Plan-and-Write system; a storyline-planning to story-generation pipeline trained on ROCStories, to enable interaction at the story-planning stage. We additionally trial a Title-to-Story baseline (no planning) & create a new Plan-and-Revise system by incorporating discriminators for Relevance & Creativity.

Plan-and-Revise modifies the language model decoding objective as below, where $s_k$ is the scoring function learnt by the discriminator and $\lambda_k$ is a learned weight coefficient:

$$f_\lambda(x, y) = \log(P_{lm}(y|x)) + \sum_k \lambda_k s_k(x, y)$$

Thus the system leverages both automated and human collaborative discriminators, and can isolate the contribution of each.

Metrics
- **Self-reported** Subjects self-report on: engagement, satisfaction with story, & perception of story quality.
- **Independent Ranking** Independent human judges are asked to rank all stories from 1-5 under eight experiment conditions for Overall Quality, Relevance, Creativity, and Causal-Temporal Coherence.

Results
- humans tasked with improving a specific story aspect are successful at doing so.
- interaction at both planning and writing stages improves story quality 10-50% over less interactive baselines.
- additional interaction increases user self-reported satisfaction in all areas (refer to tables in paper).

Code and data available at: https://github.com/seraphinatarrant/plan-write-revise

Blog Post: https://tinyurl.com/pwr-naacl-2019