[![Cornell University](/static/browse/0.3.4/images/icons/cu/cornell-reduced-white-SMALL.svg)](https://www.cornell.edu/)
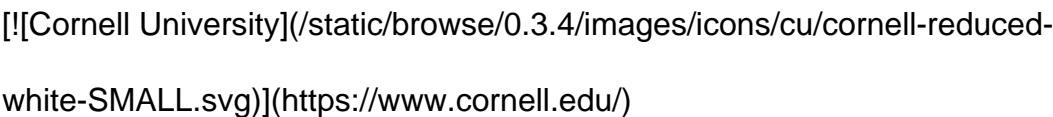
In just 3 minutes help us improve arXiv:

[Annual Global Survey](https://cornell.ca1.qualtrics.com/jfe/form/SV_6m22mbqW9GQ3pQO)

[](/IgnoreMe)

[![arxiv logo](/static/browse/0.3.4/images/arxiv-logo-one-color-white.svg)](/)

> [cs](/list/cs/recent) > arXiv:1904.09751

[Help](https://info.arxiv.org/help) | [Advanced Search](https://arxiv.org/search/advanced)

All fields Title Author Abstract Comments Journal reference ACM classification MSC classification Report number arXiv identifier DOI ORCID arXiv author ID Help pages Full text

Search

Computer Science > Computation and Language

arXiv:1904.09751 (cs)

[Submitted on 22 Apr 2019 ([v1](https://arxiv.org/abs/1904.09751v1)), last revised 14 Feb 2020 (this version, v2)]

Title:The Curious Case of Neural Text Degeneration

Authors:[Ari

Holtzman](https://arxiv.org/search/cs?searchtype=author&query=Holtzman,+A),

[Jan Buys](https://arxiv.org/search/cs?searchtype=author&query=Buys,+J), [Li

Du](https://arxiv.org/search/cs?searchtype=author&query=Du,+L), [Maxwell

Forbes](https://arxiv.org/search/cs?searchtype=author&query=Forbes,+M), [Yejin

Choi](https://arxiv.org/search/cs?searchtype=author&query=Choi,+Y)

View a PDF of the paper titled The Curious Case of Neural Text Degeneration,

by Ari Holtzman and 4 other authors

[View PDF](/pdf/1904.09751)

> Abstract:Despite considerable advancements with deep neural language models,

> the enigma of neural text degeneration persists when these models are tested

> as text generators. The counter-intuitive empirical observation is that even

> though the use of likelihood as training objective leads to high quality

> models for a broad range of language understanding tasks, using likelihood

> as a decoding objective leads to text that is bland and strangely

> repetitive.

> In this paper, we reveal surprising distributional differences between human

> text and machine text. In addition, we find that decoding strategies alone

> can dramatically effect the quality of machine text, even when generated

> from exactly the same neural language model. Our findings motivate Nucleus

> Sampling, a simple but effective method to draw the best out of neural

> generation. By sampling text from the dynamic nucleus of the probability

> distribution, which allows for diversity while effectively truncating the

> less reliable tail of the distribution, the resulting text better

> demonstrates the quality of human text, yielding enhanced diversity without

> sacrificing fluency and coherence.

Comments: | Published in ICLR 2020

---|---

Subjects: | Computation and Language (cs.CL)

Cite as: | [arXiv:1904.09751](https://arxiv.org/abs/1904.09751) [cs.CL]

 | (or [arXiv:1904.09751v2](https://arxiv.org/abs/1904.09751v2) [cs.CL] for this version)

 | <https://doi.org/10.48550/arXiv.1904.09751> Focus to learn more arXiv-issued DOI via DataCite

Submission history

Full-text links:

Access Paper:

View a PDF of the paper titled The Curious Case of Neural Text Degeneration,

by Ari Holtzman and 4 other authors

 * [View PDF](/pdf/1904.09751)

 * [TeX Source](/src/1904.09751)

 * [Other Formats](/format/1904.09751)

References & Citations

 * [NASA ADS](https://ui.adsabs.harvard.edu/abs/arXiv:1904.09751)
 * [Google Scholar](https://scholar.google.com/scholar_lookup?arxiv_id=1904.09751)
 * [Semantic Scholar](https://api.semanticscholar.org/arXiv:1904.09751)

[6 blog links](/tb/1904.09751)

([what is this?](https://info.arxiv.org/help/trackback.html))

[DBLP](https://dblp.uni-trier.de) \- CS Bibliography

[listing](https://dblp.uni-trier.de/db/journals/corr/corr1904.html#abs-1904-09751 "listing on DBLP") |
[bibtex](https://dblp.uni-trier.de/rec/bibtex/journals/corr/abs-1904-09751 "DBLP bibtex record")

[Ari Holtzman](https://dblp.uni-trier.de/search/author?author=Ari%20Holtzman "DBLP author search")
[Jan Buys](https://dblp.uni-trier.de/search/author?author=Jan%20Buys "DBLP author search")
[Maxwell Forbes](https://dblp.uni-trier.de/search/author?author=Maxwell%20Forbes "DBLP author search")
[Yejin Choi](https://dblp.uni-trier.de/search/author?author=Yejin%20Choi "DBLP author search")

[a](/static/browse/0.3.4/css/cite.css) export BibTeX citation Loading...

BibTeX formatted citation

×

loading...

Data provided by:

Bookmark

Bibliographic Tools

Bibliographic and Citation Tools

Bibliographic Explorer Toggle

Bibliographic Explorer _([What is the

Explorer?](https://info.arxiv.org/labs/showcase.html#arxiv-bibliographic-

explorer))_

Connected Papers Toggle

Connected Papers _([What is Connected

Papers?](https://www.connectedpapers.com/about))_

Litmaps Toggle

Litmaps _([What is Litmaps?](https://www.litmaps.co/))_

scite.ai Toggle

scite Smart Citations _([What are Smart Citations?](https://www.scite.ai/))_

Code, Data, Media

Code, Data and Media Associated with this Article

alphaXiv Toggle

alphaXiv _([What is alphaXiv?](https://alphaxiv.org/))_

Links to Code Toggle

CatalyzeX Code Finder for Papers _([What is
CatalyzeX?](https://www.catalyzex.com))_

DagsHub Toggle

DagsHub _([What is DagsHub?](https://dagshub.com/))_

GotitPub Toggle

Gotit.pub _([What is GotitPub?](http://gotit.pub/faq))_

Huggingface Toggle

Hugging Face _([What is Huggingface?](https://huggingface.co/huggingface))_

Links to Code Toggle

Papers with Code _([What is Papers with Code?](https://paperswithcode.com/))_

ScienceCast Toggle

ScienceCast _([What is ScienceCast?](https://sciencecast.org/welcome))_

Demos

Demos

Replicate Toggle

Replicate _([What is Replicate?](https://replicate.com/docs/arxiv/about))_

Spaces Toggle

Hugging Face Spaces _([What is
Spaces?](https://huggingface.co/docs/hub/spaces))_

Spaces Toggle

TXYZ.AI _([What is TXYZ.AI?](https://txyz.ai))_

Related Papers

Recommenders and Search Tools

Link to Influence Flower

Influence Flower _([What are Influence

Flowers?](https://influencemap.cmlab.dev/))_

Core recommender toggle

CORE Recommender _([What is CORE?](https://core.ac.uk/services/recommender))_

 * Author
 * Venue
 * Institution
 * Topic

About arXivLabs

arXivLabs: experimental projects with community collaborators

arXivLabs is a framework that allows collaborators to develop and share new
arXiv features directly on our website.

Both individuals and organizations that work with arXivLabs have embraced and
accepted our values of openness, community, excellence, and user data privacy.

arXiv is committed to these values and only works with partners that adhere to them.

Have an idea for a project that will add value for arXiv's community? [**Learn more about arXivLabs**](https://info.arxiv.org/labs/index.html).

[Which authors of this paper are endorsers?](/auth/show-endorsers/1904.09751) | [Disable MathJax](javascript:setMathjaxCookie\(\)) ([What is MathJax?](https://info.arxiv.org/help/mathjax.html))