Skip to main content

[![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)

We gratefully acknowledge support from the Simons Foundation, [member institutions](https://info.arxiv.org/about/ourmembers.html), and all contributors. [Donate](https://info.arxiv.org/about/donate.html)

[](/IgnoreMe)

[![arxiv logo](/static/browse/0.3.4/images/arxiv-logo-one-color-white.svg)](/) > [cs](/list/cs/recent) > arXiv:2205.01068

[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

```
[![arXiv logo](/static/browse/0.3.4/images/arxiv-logomark-small-
white.svg)](https://arxiv.org/)
[![Cornell University Logo](/static/browse/0.3.4/images/icons/cu/cornell-
reduced-white-SMALL.svg) ](https://www.cornell.edu/)
open search
GO
open navigation menu
## quick links
 * [Login](https://arxiv.org/login)
 * [Help Pages](https://info.arxiv.org/help)
 * [About](https://info.arxiv.org/about)
# Computer Science > Computation and Language
**arXiv:2205.01068** (cs)
[Submitted on 2 May 2022 ([v1](https://arxiv.org/abs/2205.01068v1)), last
revised 21 Jun 2022 (this version, v4)]
# Title:OPT: Open Pre-trained Transformer Language Models
```

Authors:[Susan

Zhang](https://arxiv.org/search/cs?searchtype=author&query=Zhang,+S), [Stephen Roller](https://arxiv.org/search/cs?searchtype=author&query=Roller,+S), [Naman Goyal](https://arxiv.org/search/cs?searchtype=author&query=Goyal,+N), [Mikel Artetxe](https://arxiv.org/search/cs?searchtype=author&query=Artetxe,+M), [Moya Chen](https://arxiv.org/search/cs?searchtype=author&query=Chen,+M), [Shuohui Chen](https://arxiv.org/search/cs?searchtype=author&query=Chen,+S), [Christopher

Dewan](https://arxiv.org/search/cs?searchtype=author&query=Dewan,+C), [Mona Diab](https://arxiv.org/search/cs?searchtype=author&query=Diab,+M), [Xian Li](https://arxiv.org/search/cs?searchtype=author&query=Li,+X), [Xi Victoria Lin](https://arxiv.org/search/cs?searchtype=author&query=Lin,+X+V), [Todor Mihaylov](https://arxiv.org/search/cs?searchtype=author&query=Mihaylov,+T), [Myle Ott](https://arxiv.org/search/cs?searchtype=author&query=Ott,+M), [Sam Shleifer](https://arxiv.org/search/cs?searchtype=author&query=Shleifer,+S), [Kurt

Shuster](https://arxiv.org/search/cs?searchtype=author&query=Shuster,+K),
[Daniel Simig](https://arxiv.org/search/cs?searchtype=author&query=Simig,+D),
[Punit Singh

Koura](https://arxiv.org/search/cs?searchtype=author&query=Koura,+P+S),

[Anjali Sridhar](https://arxiv.org/search/cs?searchtype=author&query=Anjali),

[Tianlu Wang](https://arxiv.org/search/cs?searchtype=author&query=Wang,+T),

[Luke

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

View a PDF of the paper titled OPT: Open Pre-trained Transformer Language Models, by Susan Zhang and 18 other authors

## [View PDF](/pdf/2205.01068)

- > Abstract: Large language models, which are often trained for hundreds of
- > thousands of compute days, have shown remarkable capabilities for zero- and
- > few-shot learning. Given their computational cost, these models are
- > difficult to replicate without significant capital. For the few that are
- > available through APIs, no access is granted to the full model weights,
- > making them difficult to study. We present Open Pre-trained Transformers
- > (OPT), a suite of decoder-only pre-trained transformers ranging from 125M to
- > 175B parameters, which we aim to fully and responsibly share with interested
- > researchers. We show that OPT-175B is comparable to GPT-3, while requiring
- > only 1/7th the carbon footprint to develop. We are also releasing our
- > logbook detailing the infrastructure challenges we faced, along with code
- > for experimenting with all of the released models.

Subjects: | Computation and Language (cs.CL); Machine Learning (cs.LG)

---|---

Cite as: | [arXiv:2205.01068](https://arxiv.org/abs/2205.01068) [cs.CL]

| (or [arXiv:2205.01068v4](https://arxiv.org/abs/2205.01068v4) [cs.CL] for this version)

| <a href="https://doi.org/10.48550/arXiv.2205.01068">https://doi.org/10.48550/arXiv.2205.01068</a>> Focus to learn more arXiv-issued DOI via DataCite

## Submission history

From: Susan Zhang [[view email](/show-email/a2d4df92/2205.01068)]

\*\*[[v1]](/abs/2205.01068v1)\*\* Mon, 2 May 2022 17:49:50 UTC (9,196 KB)

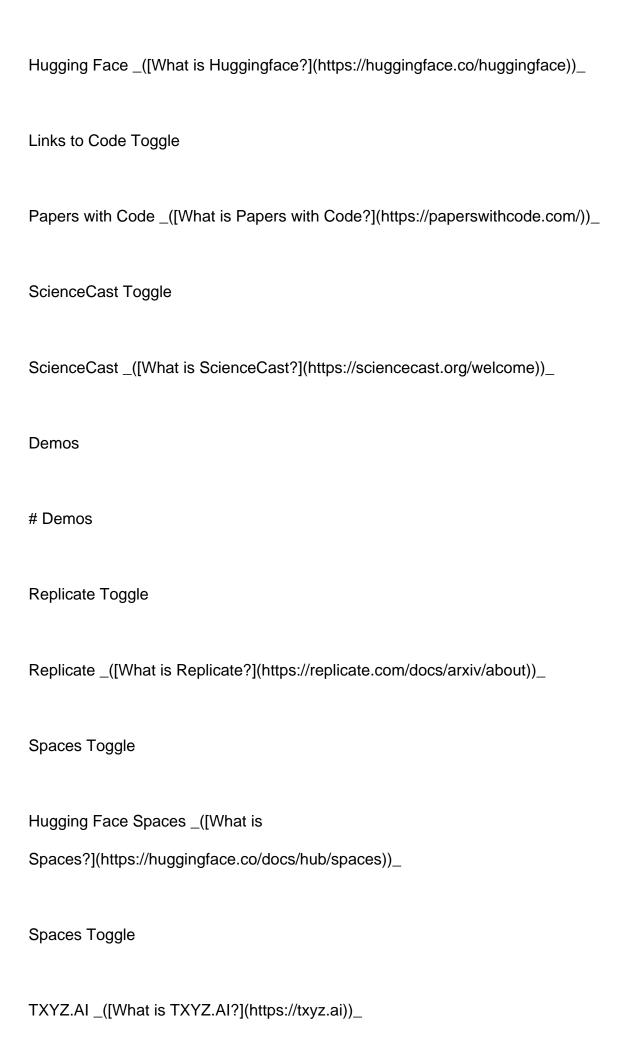
```
**[[v2]](/abs/2205.01068v2)** Tue, 3 May 2022 15:04:06 UTC (9,190 KB)
**[[v3]](/abs/2205.01068v3)** Thu, 5 May 2022 11:44:30 UTC (7,822 KB)
**[v4]** Tue, 21 Jun 2022 17:04:40 UTC (7,832 KB)
Full-text links:
## Access Paper:
View a PDF of the paper titled OPT: Open Pre-trained Transformer Language
Models, by Susan Zhang and 18 other authors
 * [View PDF](/pdf/2205.01068)
 * [TeX Source](/src/2205.01068)
 * [Other Formats](/format/2205.01068)
[![license icon](https://arxiv.org/icons/licenses/by-4.0.png) view license
](http://creativecommons.org/licenses/by/4.0/ "Rights to this article")
Current browse context:
cs.LG
[< prev](/prevnext?id=2205.01068&function=prev&context=cs.LG "previous in cs.LG \(accesskey
p\)")
               [next >](/prevnext?id=2205.01068&function=next&context=cs.LG "next in cs.LG
\(accesskey n\)")
[new](/list/cs.LG/new) | [recent](/list/cs.LG/recent) | [2022-05](/list/cs.LG/2022-05)
```

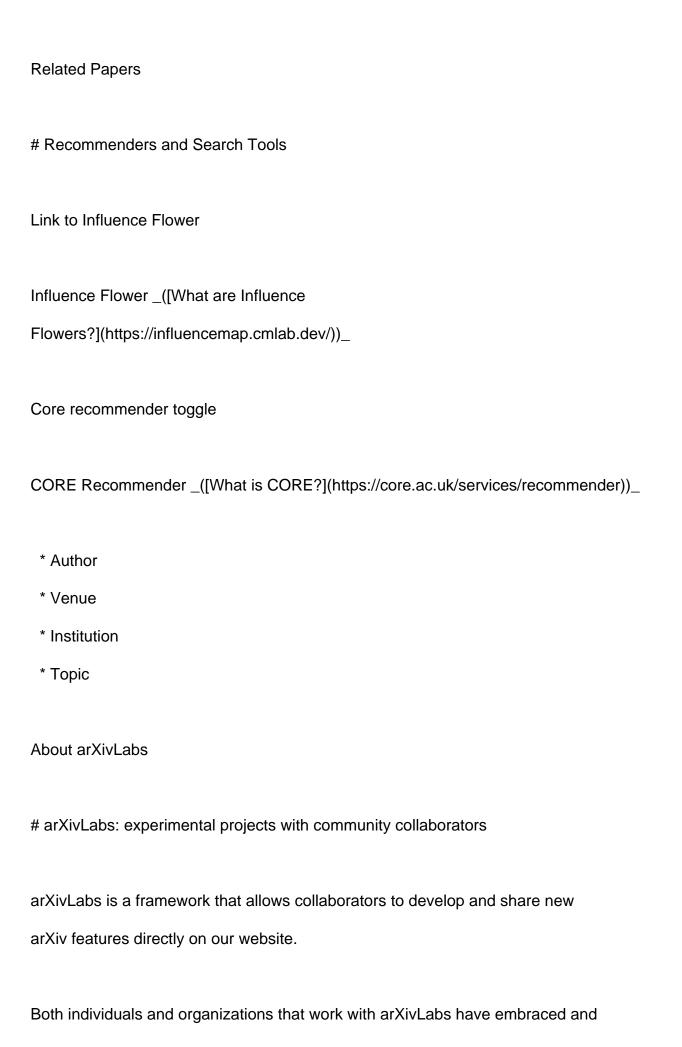
Change to browse by:
[cs](/abs/2205.01068?context=cs)
[cs.CL](/abs/2205.01068?context=cs.CL)
### References & Citations
* [NASA ADS](https://ui.adsabs.harvard.edu/abs/arXiv:2205.01068)
* [Google Scholar](https://scholar.google.com/scholar_lookup?arxiv_id=2205.01068)
* [Semantic Scholar](https://api.semanticscholar.org/arXiv:2205.01068)
### [ 3 blog links](/tb/2205.01068)
([what is this?](https://info.arxiv.org/help/trackback.html))
[a](/static/browse/0.3.4/css/cite.css) export BibTeX citation Loading
## BibTeX formatted citation
×
loading
Data provided by:
### Bookmark

```
[![BibSonomy logo](/static/browse/0.3.4/images/icons/social/bibsonomy.png)
](http://www.bibsonomy.org/BibtexHandler?requTask=upload&url=https://arxiv.org/abs/2205.01068&
description=OPT:
Open Pre-trained Transformer Language Models "Bookmark on BibSonomy") [
![Reddit logo](/static/browse/0.3.4/images/icons/social/reddit.png)
](https://reddit.com/submit?url=https://arxiv.org/abs/2205.01068&title=OPT:
Open Pre-trained Transformer Language Models "Bookmark on Reddit")
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
```





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/2205.01068) | [Disable MathJax](javascript:setMathjaxCookie\(\)) ([What is

- MathJax?](https://info.arxiv.org/help/mathjax.html))
  - \* [About](https://info.arxiv.org/about)
  - \* [Help](https://info.arxiv.org/help)
  - \* contact arXivClick here to contact arXiv [ Contact](https://info.arxiv.org/help/contact.html)
- \* subscribe to arXiv mailingsClick here to subscribe [
  Subscribe](https://info.arxiv.org/help/subscribe)
  - \* [Copyright](https://info.arxiv.org/help/license/index.html)
- \* [Privacy Policy](https://info.arxiv.org/help/policies/privacy\_policy.html)
- \* [Web Accessibility Assistance](https://info.arxiv.org/help/web\_accessibility.html)
- \* [arXiv Operational Status ](https://status.arxiv.org)

Get status notifications via

[email](https://subscribe.sorryapp.com/24846f03/email/new) or

[slack](https://subscribe.sorryapp.com/24846f03/slack/new)