

Training models (2022) [3] this paper contains instructions in how to fine-tune language models with user intent on a wide range of tasks by using human feedback. Starting with a set of labeler-written prompts and prompts submitted through the OpenAI API, they collected a dataset of labeler demonstrations of the desired model behavior, which they later used to fine-tune GPT-3 using supervised learning and the collect the dataset of rankings of model outputs. These are used to further fine-tune the model using reinforcement learning from human feedback. The model names are InstructGPT. In human evaluations on our prompt distribution, outputs from the 1.3B parameter InstructGPT model are preferred to outputs from the 175B GPT-3, despite having 100x fewer parameters. Moreover, InstructGPT models show improvements in truthfulness and reductions in toxic output generation while having minimal performance regressions on public NLP datasets. Even though InstructGPT still makes simple mistakes, their results show that fine-tuning with human feedback is a promising direction for aligning language models with human intent.

Methods

Use the `Methods` section to describe what you did and how you did it – in what way did you prepare the data, what algorithms did you use, how did you test various solutions ... Provide all the required details for a reproduction of your work.

Below are \LaTeX examples of some common elements that you will probably need when writing your report (e.g. figures, equations, lists, code examples ...).

Equations

You can write equations inline, e.g. $\cos \pi = -1$, $E = m \cdot c^2$ and α , or you can include them as separate objects. The Bayes's rule is stated mathematically as:

$$P(A|B) = \frac{P(B|A)P(A)}{P(B)}, \quad (1)$$

where A and B are some events. You can also reference it – the equation 1 describes the Bayes's rule.

Lists

We can insert numbered and bullet lists:

1. First item in the list.
 2. Second item in the list.
 3. Third item in the list.
- First item in the list.
 - Second item in the list.
 - Third item in the list.

We can use the `description` environment to define or describe key terms and phrases.

Word What is a word?.

Concept What is a concept?

Idea What is an idea?

Random text

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Figures

You can insert figures that span over the whole page, or over just a single column. The first one, Figure 1, is an example of a figure that spans only across one of the two columns in the report.

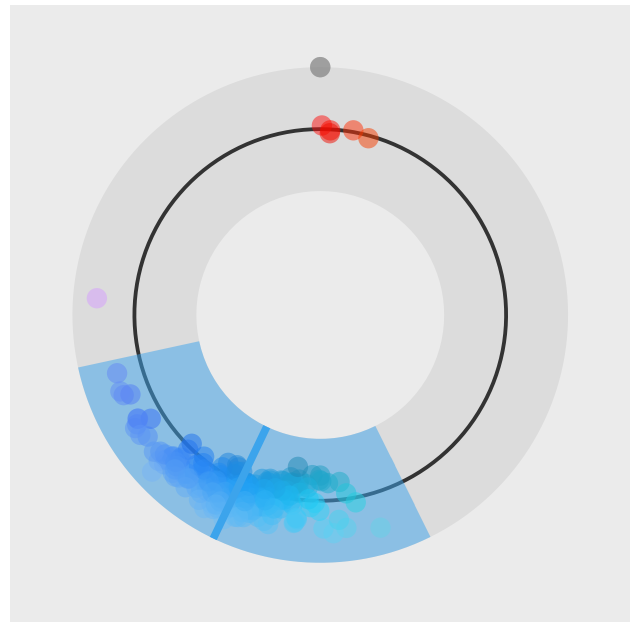


Figure 1. A random visualization. This is an example of a figure that spans only across one of the two columns.

On the other hand, Figure 2 is an example of a figure that spans across the whole page (across both columns) of the report.

Tables

Use the `table` environment to insert tables.

Table 1. Table of grades.

Name		Grade
First name	Last Name	
John	Doe	7.5
Jane	Doe	10
Mike	Smith	8

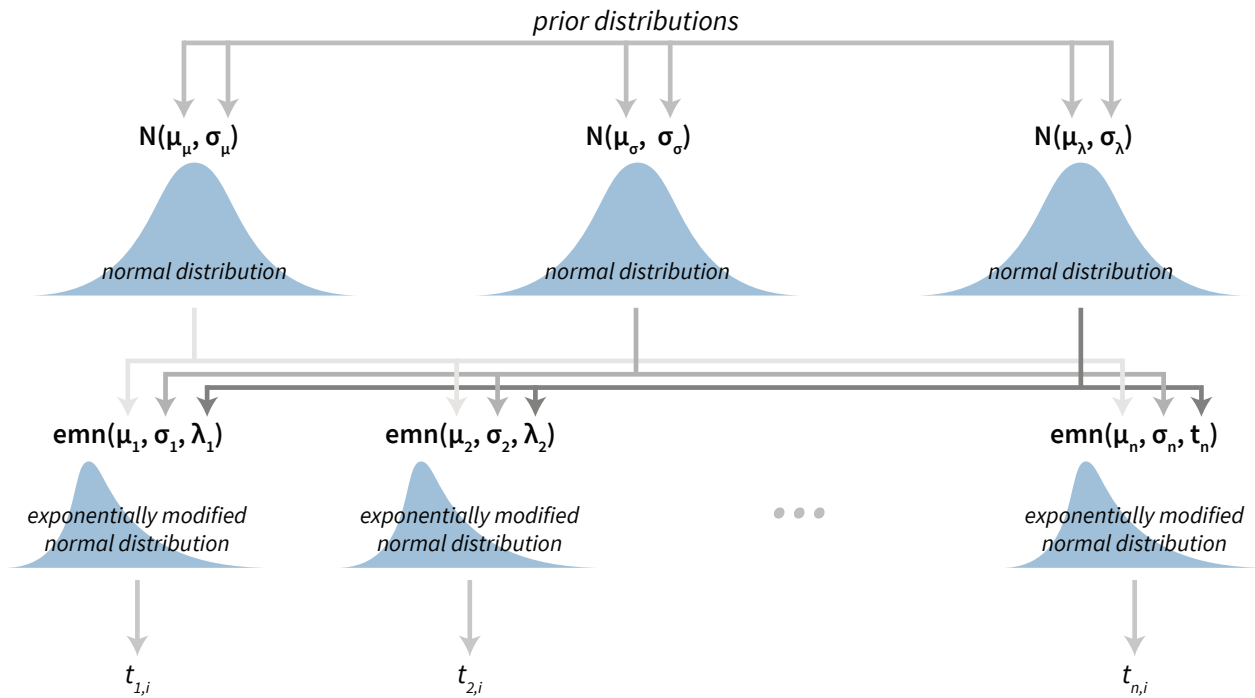


Figure 2. Visualization of a Bayesian hierarchical model. This is an example of a figure that spans the whole width of the report.

Code examples

You can also insert short code examples. You can specify them manually, or insert a whole file with code. Please avoid inserting long code snippets, advisors will have access to your repositories and can take a look at your code there. If necessary, you can use this technique to insert code (or pseudo code) of short algorithms that are crucial for the understanding of the manuscript.

Listing 1. Insert code directly from a file.

```
import os
import time
import random

fruits = ["apple", "banana", "cherry"]
for x in fruits:
    print(x)
```

Listing 2. Write the code you want to insert.

```
import (dplyr)
import (ggplot)

ggplot (diamonds,
        aes(x=carat, y=price, color=cut)) +
  geom_point() +
  geom_smooth()
```

Results

Use the results section to present the final results of your work. Present the results in a objective and scientific fashion. Use

visualisations to convey your results in a clear and efficient manner. When comparing results between various techniques use appropriate statistical methodology.

More random text

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Discussion

Use the Discussion section to objectively evaluate your work, do not just put praise on everything you did, be critical and exposes flaws and weaknesses of your solution. You can also explain what you would do differently if you would be able to start again and what upgrades could be done on the project in the future.

Acknowledgments

Here you can thank other persons (advisors, colleagues ...) that contributed to the successful completion of your project.

References

- [1] Hugo Touvron, Louis Martin, Kevin Stone, Peter Albert, Amjad Almahairi, Yasmine Babaei, Nikolay Bashlykov, Soumya Batra, Prajjwal Bhargava, Shruti Bhosale, Dan Bikel, Lukas Blecher, Cristian Canton Ferrer, Moya Chen, Guillem Cucurull, David Esiobu, Jude Fernandes, Jeremy Fu, Wenyin Fu, Brian Fuller, Cynthia Gao, Vedanuj Goswami, Naman Goyal, Anthony Hartshorn, Saghar Hosseini, Rui Hou, Hakan Inan, Marcin Kardas, Viktor Kerkez, Madian Khabsa, Isabel Kloumann, Artem Korenev, Punit Singh Koura, Marie-Anne Lachaux, Thibaut Lavril, Jenya Lee, Diana Liskovich, Yinghai Lu, Yuning Mao, Xavier Martinet, Todor Mihaylov, Pushkar Mishra, Igor Molybog, Yixin Nie, Andrew Poulton, Jeremy Reizenstein, Rashi Rungta, Kalyan Saladi, Alan Schelten, Ruan Silva, Eric Michael Smith, Ranjan Subramanian, Xiaoqing Ellen Tan, Binh Tang, Ross Taylor, Adina Williams, Jian Xiang Kuan, Puxin Xu, Zheng Yan, Iliyan Zarov, Yuchen Zhang, Angela Fan, Melanie Kambadur, Sharan Narang, Aurelien Rodriguez, Robert Stojnic, Sergey Edunov, and Thomas Scialom. Llama 2: Open foundation and fine-tuned chat models, 2023.
- [2] Hugo Launçon, Lucile Saulnier, Thomas Wang, Christopher Akiki, Albert Villanova del Moral, Teven Le Scao, Leandro Von Werra, Chenghao Mou, Eduardo González Ponferrada, Huu Nguyen, Jörg Froberg, Mario Šaško, Quentin Lhoest, Angelina McMillan-Major, Gerard Dupont, Stella Biderman, Anna Rogers, Loubna Ben allal, Francesco De Toni, Giada Pistilli, Olivier Nguyen, So-maieh Nikpoor, Maraim Masoud, Pierre Colombo, Javier de la Rosa, Paulo Villegas, Tristan Thrush, Shayne Longpre, Sebastian Nagel, Leon Weber, Manuel Muñoz, Jian Zhu, Daniel Van Strien, Zaid Alyafeai, Khalid Almubarak, Minh Chien Vu, Itziar Gonzalez-Dios, Aitor Soroa, Kyle Lo, Manan Dey, Pedro Ortiz Suarez, Aaron Gokaslan, Shamik Bose, David Adelani, Long Phan, Hieu Tran, Ian Yu, Suhas Pai, Jenny Chim, Violette Lepercq, Suzana Ilic, Margaret Mitchell, Sasha Alexandra Luccioni, and Yacine Jernite. The bigscience roots corpus: A 1.6tb composite multilingual dataset, 2023.
- [3] Long Ouyang, Jeff Wu, Xu Jiang, Diogo Almeida, Carroll L. Wainwright, Pamela Mishkin, Chong Zhang, Sandhini Agarwal, Katarina Slama, Alex Ray, John Schulman, Jacob Hilton, Fraser Kelton, Luke Miller, Maddie Simens, Amanda Askell, Peter Welinder, Paul Christiano, Jan Leike, and Ryan Lowe. Training language models to follow instructions with human feedback, 2022.