

《气候变化视频传播中的框架策略识别——基于无监督机器学习方法》

补充材料

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表 S1 LDA 模型所生成主题的 Top20 关键词

主题	关键词
青年行动	find, lead, thirty, become, food, story, may, young, sort, past
全球风险	see, want, live, life, lot, ice, million, earth, event, human
环境影响	show, simon, might, glacier, hear, warm, water, global, problem, impact
气候移民	new, level, hundred, thousand, rise, sea, increase, twenty, fifty, home
官方行动	year, last, country, try, planet, many, city, five, government, ago
气候科学	make, much, well, mean, two, carbon, work, big, part, emission
国际援助	go, world, say, need, get, look, right, happen, good, start
经济损失	time, way, three, first, help, bring, bad, little, point, issue
减缓方案	stop, give, build, area, today, next, whole, effect, leave, another
极端天气	take, come, really, change, use, even, day, thing, flood, island

表 S2 LDA 模型所生成主题的分布概率 Top1 纪录片及相关表述

主题	分布概率 Top1 纪录片	相关表述
青年行动	Climate Change: Made in the USA?	Today, 6 in 10 Americans say climate change scares them. Only a few days before the presidential elections, this could be decisive. Above all, because of young voters. 15 million young voters more than in 2016 can vote in this election.....All the youth everywhere are participating we all recognize that this is our future that we're fighting for so this is definitely way bigger than me or than Talent. In the US, as many as 500,000 young people participated in an event for the fight against climate change..... 17 out of the past 18 years are the hottest years on record. Soon, I'm going to be coming into the workforce. This young man is an active supporter of the "green new deal," Joe Biden's environmental plan.....We are going to be going out there collecting trash from the beach which I'm sure you all have done, and then we are going to be sorting it into various categories which I have on a poster, the different categories. Their goal is to confront the industry with its rubbish. Charlie's 15-year-old sister, Dakota, organized this event. We're taking this plastic; we're finding the brand.
全球风险	Our Planet One Planet	Over the last twenty years, Greenland has been losing nice. And the rate of loss is accelerating. These massive icefalls from the top of the glacier are just the beginnings of a far greater eventWithin twenty minutes, seventy-five million tons of ice break free. Glaciers have always released ice into the ocean, but now this is happening nearly twice as fast as it did ten years ago.....The stability that we and all life rely upon is being lost. What we do in the next twenty years will determine the future for all life on earth . The rest of this series will explore the planet's most important habitats, and celebrate the life they still support. We will reveal what must be preserved if we are to ensure a future where humans and nature can thrive.
环境影响	Do Coldest Places on Earth Prove Global Warming?	The impact of those temperature increases is obvious. When you look at where the glacier used to be. And where it is today. In the last one hundred years, it's retreated two and a half kilometers, and that concerns scientists, like doctor Wendy Lewis..... How sure are you that what we are doing as a society is affecting this glacier ? I have absolutely no doubt that what humans are doing on the source of the earth's surface is contributing to the retreat of these glaciers now. We are part of the story here. We're part of the problem .
气候移民	Climate Commission Port Macquarie Community Forum	I'm wondering what are the current projections about how it's going to impact them, including climate change refugees, and how do you suggest Australia supports these countries? I read a statistic just yesterday that a hundred and fifty million people in the world live within one meter of sea level rise , so that's a fairly significant number and those are mainly people in the big mega delta like in Bangladesh and other places I think closer to home . What Australia will be concerned with will be helping residents of the Torres strait first and residents of some of the lower lying pacific islands that are already being eroded by sea level rise and by storm surge.
官方行动	Flooded by Climate Change:	India is one of the most climate, vulnerable nations on the planet , a land of varying topography and climatic zones. It routinely suffers from extreme heat and drought to

	Will India Sink or Swim?	<p>severe rains and floods. According to the global climate risk index, it ranked among the top 10 affected countries in 2018 to reduce the risks. India has taken major steps to deal with the natural disaster it routinely faces. For example, the government has built dams, barrages, levees, and embankments to control the flow of water..... Many cities in the world have tried to control rivers and floods by building embankments by channeling reverse through, but whenever there is an excess flow and excess flow happens, then it overflows into the city. This is as much true of cities in France and Germany as it is of cities in India. On the other hand, making cities such that they can take in a larger amount of water and slowly release it.</p>
气候科学	How Should We Adapt to Extreme Weather Caused by Climate Change?	<p>This past week there was a new study that was published by the journal Nature, said that portions of the amazon rainforest are now releasing more carbon dioxide than they absorb. How worrying is that to you and how devastating of an impact could that have? It is something that you know when we're doing the accounting of this. You know the causes of climate change and where the carbon dioxide is coming from. You know we're around 85 to 90 at this point is coming from fossil fuel burning..... So much not that we've decreased deforestation by that much and the problem is that a lot of countries are banking on their forests to absorb some of the carbon dioxides from fossil fuel burning and whatnot, and as we see the impacts of climate change affect forests..... It affects the carbon balance of the forests and affects government assumptions about what level of emissions from fossil fuels are going to be uh allowable to you know, to hit the target you're aiming for. And so, you know, the recent data from amazon is really just pointing to the importance of cutting emissions from all other means.</p>
国际援助	Can Kiribati Be Saved or Will It Drown?	<p>Some of the Kiribati islands are already underwater. And half of its population has fled to the tiny capital of south Tarawa, which now has one of the highest population densities in the world. The government has begun a program to train citizens and skills like nursing or mechanics that would make them attractive migrants to other countries. And it even bought a large chunk of land in neighboring. Fiji, which says it's willing to host the Kiribati population, so will the rest of the world start paying attention before the people of Kiribati become the first wave of refugees fleeing from the rising sea also? Alice Thomas is the climate displacement program manager at the Washington DC-based advocacy group refugees international. Malika, thanks Emmy, and I'm with you. Of course, we are at the Kickstarter lodge right now a little cold, but we're braving it for this important topic and it kickstarts a large lounge because this was partially Kickstarter funded. I know the world premiere was on Friday. Our audience, what it was that inspired you to make this film in the first place when the first day I came to pity bus in 2014, and I was amazed. But what happened there, I mean they're losing the entire land and I start questioning myself about the relationship between people and then and what's good.</p>
经济损失	2020: The Year of Climate Extremes	<p>The threat of a passing hurricane kills business big time, boats get sent up the river to avoid damage from storm surges. Every time there's a storm the boats got to see it.....</p>

So, I mean we lost **three** months of work. That's a lot of money. Tough **times**, but not exactly new for those choosing to still live here..... When you got a season, that's just **bringing** one storm after another right to your doorstep. I mean that's not normal. No! No! No! It's a very abnormal year. We opened it that **way**, we're hoping it does not become the norm. You know if it does become the norm, then we're gonna have to reevaluate it, and you know probably have to get out of here. You know, for just a few weeks left in trump's season, Dean is doing his best to make up for a lost **time**, but he admits it may just be a matter of **time** before some things got to give. Dean, you're the guy that is always still behind. And what you're thinking about maybe leaving. We got no other choice. I mean we can't make a living. No more. I mean you're gonna have to go somewhere there. How **bad** does it look now? It looked **bad**.

减缓方案 Is It Too Late for America to
Avoid Climate Change?

We already have **today**, and so, if we're really going to make a dent, we've got to do some retrofits. I would like to see some of the effort transferred into installing real efficiency for low-income people. Many of these apartment **buildings** are just dreadfully inefficient and the **whole** thought of taking gas and simply blowing it out.....When you renovate a **building**, you're not going to take that **building** and ship it overseas renovates. It then ships it back. You're going to renovate it on site. We're going to have to weatherize millions of **buildings** The empire state **building** is old, it has a lot of complicated details and old systems. The **building** is up for some major technical renovations anyway, and instead of doing a normal renovation that makes it nicer, but not more efficient. We can do both at once we're here at the empire state **building today**, and our goal is to make this **building** the most efficient **building**. It can be we're talking about putting a shelf that would reflect the sunlight onto the ceiling into the space so that it would be reflected down deeper into the space. The breakthroughs in one **area** can drive further breakthroughs in **another** we're here to change the rules.

极端天气 Climate Change - Britain
Under Threat

The following **day**, 306 people were dead and 30 000 were facing evacuation. Canvey **Island** in Essex was one of the hardest hit spots as a 5 meter. Storm surge raced down the river Thames few of the 13 000 residents here, mostly living in single-story buildings, had any idea what was about to happen. It was **really** rough. I was taking waves right across the top of the boat, and the first **thing** we encountered was a bush large bush with two bodies hooked up in it Storm surge was the state of its **flood** defenses. This is one of the last remaining stretches of the original seawall here at Canvey **Island** and you can see when you look at it why it breached in so many places because fundamentally it's a big mound of Earth and that's it. But what was a disaster for Canvey **Island** and its inhabitants was a blessing for the capital. If the sea defenses here hadn't breached and in a thousand other places up and down the east coast of the UK, then London without a doubt would have been engulfed so well before climate **change** was **even** an issue. Plans were put in place to construct a huge **flood** barrier to protect the capital from the next storm surge.

表 S3 社群检测算法所生成可控性框架分布概率 Top1 纪录片及相关表述

框架	分布概率 Top1 纪录片	相关表述
可控性 框架	Climate Change: Made in the USA?	And Joe Biden has released a plan to help combat climate change and make sure that my future and future generations' futures are preserved. The plan promises a complete switch to renewable energy by 2050. Trump has already rejected it. You hope not? Are you voting for Trump then? Definitely. Trump is not making the right decisions for the country or my future, especially because he's a racist, homophobic, climate denier. It's just a whole litany of issues. In this case, Biden is the best choice for the climate. Alongside China, the US is the biggest polluter in the world. One indicator is plastic consumption. 80 kg per year, per person, compared to 60 kg in Western Europe. We are going to be going out there collecting trash from the beach which I'm sure you all have done, and then we are going to be sorting it into various categories which I have on a poster, the different categories. Their goal is to confront the industry with its rubbish. Charlie's 15-year-old sister, Dakota, organized this event. We're taking this plastic. We're finding the brand. We're finding what kind they are and then we're going to those corporations and we're logging it and we're putting it into data. And once we have that, we're going to the source of the plastic and asking them to stop making it so that it stops ending on the beach.

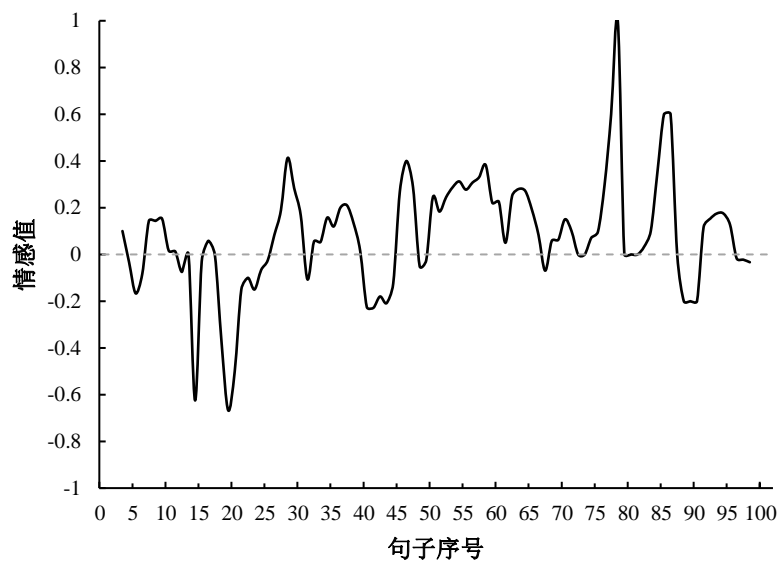


图 S1 可控性框架主题分布概率 Top1 纪录片情感曲线图