



*Why Language Transformer Models
Will Transform the Insights Industry*

NEXT Conference, May 19th, 2021

We are now at the point where technology is changing the way insights are delivered. In particular, there is a new class of models that are being developed that are capable of transforming data into insights. These models are not statistical models, nor are they expert models, and they are not domain models. The term 'transformer' has been coined to describe these models.



In this presentation, I will put a gold box around everything generated by an AI system

- GPT-3

CULTURAL COMMENT

THE COMPUTERS ARE GETTING BETTER AT WRITING

Whatever field you are in, if it uses language, it is about to be transformed.

By Stephen Marche
April 30, 2021



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Attention Is All You Need

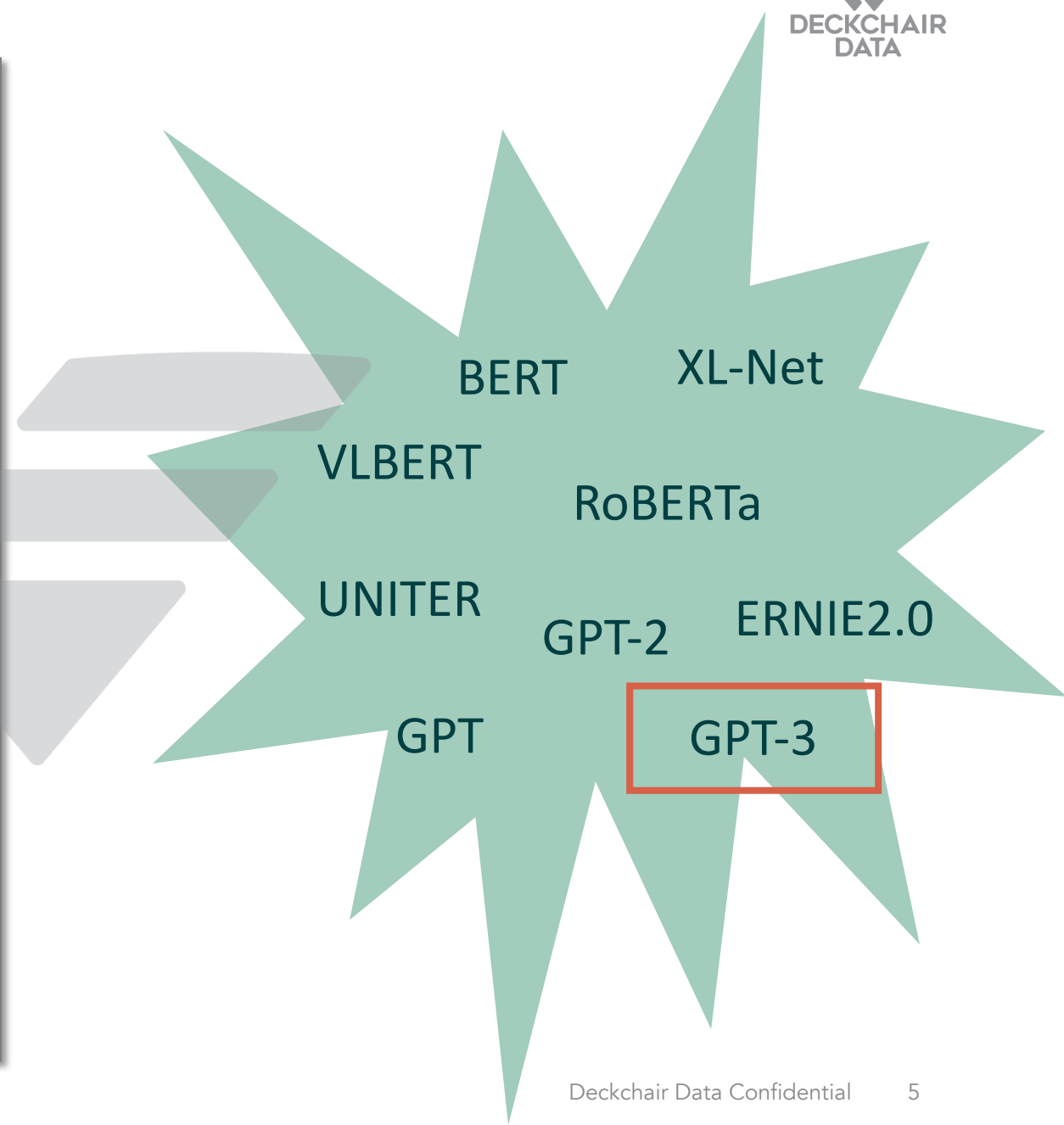
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Abstract

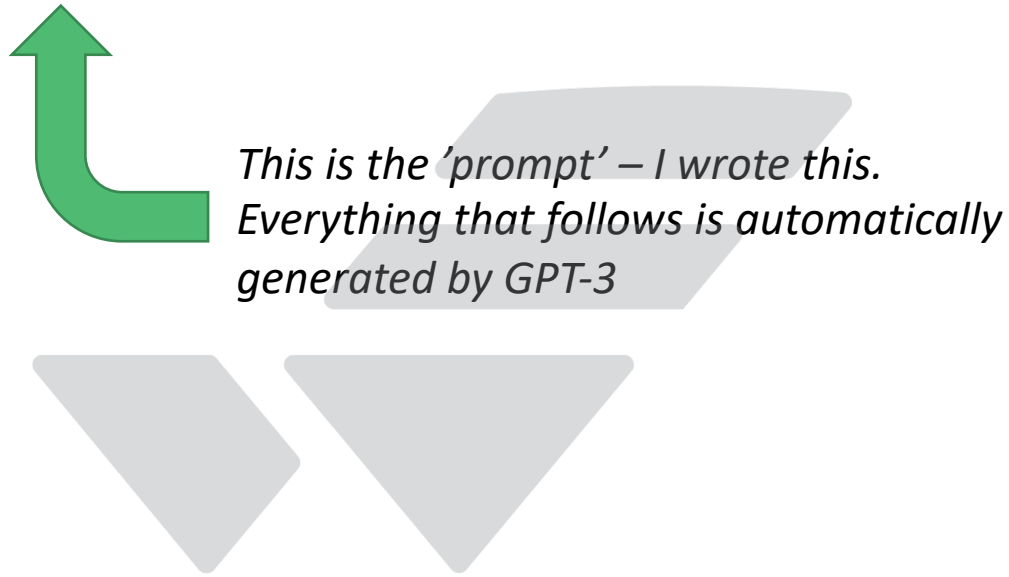
The dominant sequence transduction models are based on complex recurrent or convolutional neural networks that include an encoder and a decoder. The best performing models also connect the encoder and decoder through an attention mechanism. We propose a new simple network architecture, the Transformer, based solely on attention mechanisms, dispensing with recurrence and convolutions entirely. Experiments on two machine translation tasks show these models to be superior in quality while being more parallelizable and requiring significantly less time to train. Our model achieves 28.4 BLEU on the WMT 2014 English-to-German translation task, improving over the existing best results, including ensembles, by over 2 BLEU. On the WMT 2014 English-to-French translation task, our model establishes a new single-model state-of-the-art BLEU score of 41.8 after training for 3.5 days on eight GPUs, a small fraction of the training costs of the best models from the literature. We show that the Transformer generalizes well to other tasks by applying it successfully to English constituency parsing both with large and limited training data.

1 Introduction

Recurrent neural networks, long short-term memory [13] and gated recurrent [7] neural networks in particular, have been firmly established as state of the art approaches in sequence modeling and



Once upon a time, in the Magical Kingdom of the Insights Association, Queen Melanie decreed there would be a Grand Conference. She declared that it would be called NEXT, and all her courtiers were excited.



Look out – it knows about our notebooks and pens!

Once upon a time, in the Magical Kingdom of the Insights Association, Queen Melanie decreed there would be a Grand Conference. She declared that it would be called NEXT, and all her courtiers were excited.

They started to get dressed up, and they prepared the best cheese crackers and chocolate brownies and punch you could imagine, as well as hundreds of little notebooks and pens. They sent out invitations to everyone they could think of who might be interested in attending the conference. They even sent out special invitations to the great people of the Internet, who had been known to come to conferences before.

But the Grand Conference never happened.

Why not?

Because the Queen was a little lost.

So the Queen and her courtiers got together and asked a few questions. They asked themselves, "What is the purpose of this conference? Why should we have a conference at all? Who are we trying to reach with this conference? What is the benefit of the conference to everyone involved?"

"Let's try to figure it out," they said. And they tried. They wrote down their ideas, and they tried to think about how they could make the conference happen. They sent out more invitations. But, to be honest, nothing really happened.

The Queen was still a little lost. So, they asked a few more questions. They asked, "What would it take to create a great conference for everyone?" They asked, "How can we ensure that the conference is what everyone wants it to be?" "How can we make sure we don't just talk to our friends, but we talk to everyone?"

And then, someone had a great idea!

They said, "Let's ask our people what they want from the conference. Let's ask them what they want to know, and let's ask them what they want to say. Let's ask them how they want to be involved and what they want to take away. Let's get them engaged and let's do it all online."

"Let's make a survey," they said.

And they did. They asked people how they could be involved, and they asked people what they wanted to learn. They asked people what they wanted to say and what they wanted to take away. They asked people a lot of questions about what they wanted to learn and how they wanted to be involved.

Playground ?

▼

Once upon a time, in the Magical Kingdom of the Insights Association, Queen Melanie decreed there would be a Grand Conference. She declared that it would be called NEXT, and all her courtiers were excited. They started to get dressed up, and they prepared the best cheese crackers and chocolate brownies and punch you could imagine, as well as hundreds of little notebooks and pens. They sent out invitations to everyone they could think of who might be interested in attending the conference. They even sent out special invitations to the great people of the Internet, who had been known to come to conferences before.

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Engine

davinci ▼

Response Length 554

Temperature 0.7

Top P 1

Frequency Penalty 0

Presence Penalty 0

Best Of 1

Stop Sequences

Enter sequence and press Tab

Inject Start Text

Inject Restart Text

Show Probabilities

Off ▼



So, it can auto-generate text from a prompt?
What's the big deal?



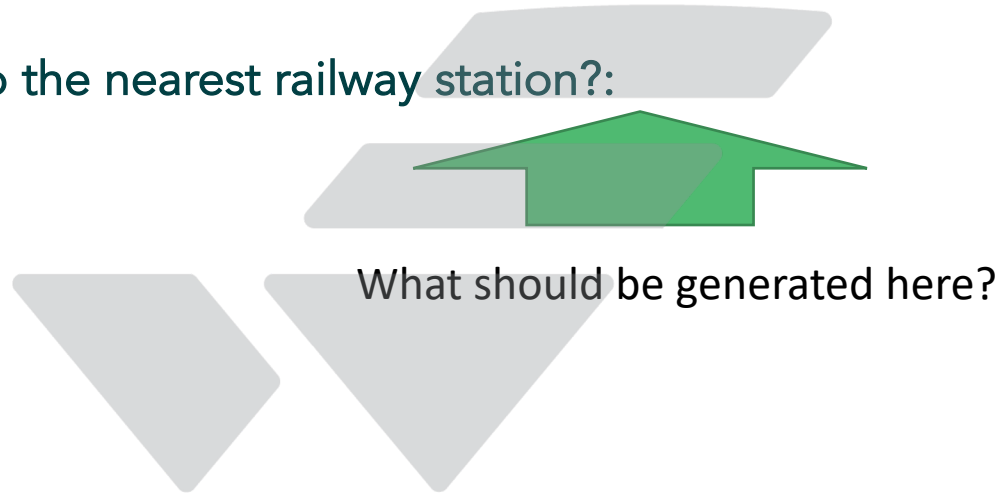
Consider this Prompt:

Dog: Perro

Farm: Granja

Child: Niño

Excuse me, can you direct me to the nearest railway station?:



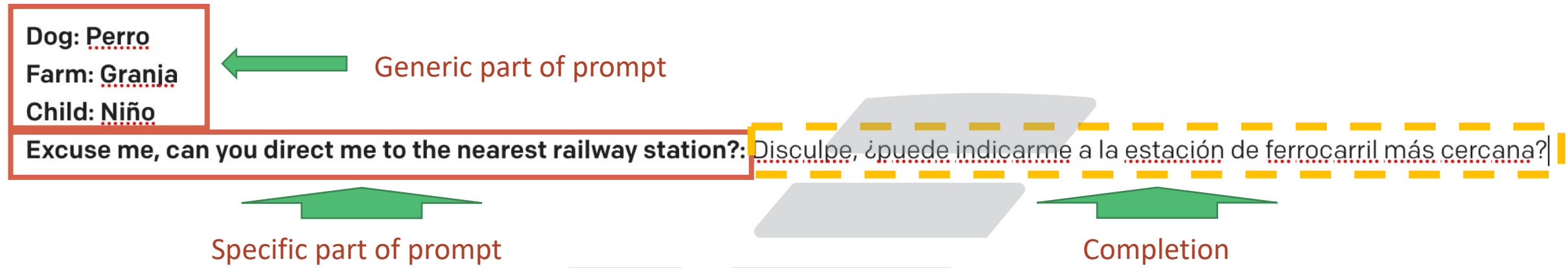
Playground

Dog: Perro

Farm: Granja

Child: Niño

Excuse me, can you direct me to the nearest railway station?: Disculpe, ¿puede indicarme a la estación de ferrocarril más cercana?



This is the breakthrough: What in the past would require massive custom training of the system can now be achieved by a few simple examples. This is called 'Few-Shot Learning'

Categorization: How we have used it for Insights

Consider this prompt:

bananas: fruit

pork chops: meat

planters dry roast peanuts: snacks

6-pack 80% lean beefburgers (frozen): frozen food

sliced ham: deli

1 gallon 2% milk: dairy

juanitas tortilla chips large: snacks

yopicks custom couple bracelets, engraved his and hers matching set bar bracelet personalized rope braided nameplate id bracelet for lover:

Results



"yopicks custom couple bracelets, engraved his and hers matching set bar bracelet personalized rope braided nameplate id bracelet for lover": "jewelry",
"the honest company hand sanitizer spray, fragrance free, 2 fluid ounce – packaging may vary": "health & personal care",
"organic moringa oleifera leaf powder | perfect for smoothies, drinks, tea & recipes | 100% raw from india | 16oz resealable kraft bag (1 pound) | by fgo":
"grocery & gourmet food",
"organic wheat grass prepacked and potted": "health & personal care",
"la costena charro beans, 20 oz": "grocery & gourmet food",
"kite hill strawberry almond milk yogurt": "health & personal care",
"4 piece nail clippers set | salon quality results in the comfort of your own home with travel case by purebello": "beauty",
"full circle tidy 100% organic cotton dish cloths, set of 3, multicolored": "kitchen & dining",
"fresh brand topped strawberries, 10 oz": "grocery & gourmet food",
"wet 'n wild photo focus stick foundation, almond": "beauty",
"(max 2) bounty select-a-size double roll paper towels": "household",
"lance variety pack sandwich crackers with toastchee and toasty with peanut butter and captain's wafers with cream cheese, 20 ct": "grocery & gourmet food",
"gatorade zero sugar orange thirst quencher powder": "sports & outdoors",
"not your mother's beach babe texturizing sea salt spray 2 oz (pack of 2)": "beauty",
"sam's choice angus vidalia onion beef patties, 6 ct, 2 lb (frozen)": "grocery & gourmet food",
"wilton butterfly grippy plastic cookie cutter": "home & kitchen",
"vlikeze plush non-slip bath mat, microfiber bath rug floor mat ultra soft washable bathroom dry fast water absorbent bedroom area rugs kitchen rugs non skid 78 x 50cm/ 31 x 20in": "patio, lawn & garden",
"dc sports lpr-100 universal front license plate tow hook relocation mounting kit": "automotive",
"vans kids authentic elastic lace dallas": "shoes",
"spring valley 5-htp capsules, 100 mg, 30 count": "health & personal care",
"great value breakfast pizza, 30.5 oz": "grocery & gourmet food",
"topesct ipad 7th generation case for kids,with tempered glass screen protector and strap,premium silicone shockproof apple new ipad 10.2 2019 case cover with kickstand and pencil holder. (blue)": "cell phones & accessories",
"huy fong chili garlic sauce": "grocery & gourmet food",
"Kroger rosemary leaves": "grocery & gourmet food",
"kraft easy mac extreme cheese macaroni and cheese, 6 ct – 12.9 oz box": "grocery & gourmet food",
"glad lavender forceflex odor shield tall kitchen drawstring bags": "kitchen & dining",
"private selection english toffee caramel ice cream": "grocery & gourmet food",
"la tiara authentic mexican taco shells, 4.2 oz, 18 ct": "grocery & gourmet food",
"hyper tough 12ft 16awg 2 prong black indoor use household extension cord": "household", ...times one million

Some Random Research Examples

Discussion Guide: Fast Food Alternatives

Audience: Stay at home Moms

Warm-up: Tell us a little about your weekly meal planning routine.

- How do you come up with meal ideas?
- Are there any foods you eat every week?
- What are your favorite ingredients to cook with?
- What are some of your favorite healthy meals?
- How do you handle meal time when you are tired or short on time?
- How do you handle the pressure from society to serve unhealthy food?

Research Ideas:

Sadly, a breakthrough tool for cheaters:

On a Scale of 0-10 how likely are you to recommend Wonky Bar and Grill to a friend or colleague: 8
Why did you give that rating?:

The food is great, the beer is great and the atmosphere is great. I love that they have a lot of vegetarian options, and the wait staff is always great.

Prompt for CX Survey – Auto Shop

Thank you for agreeing to take our short Customer Experience Survey. We would love to hear about your recent experience at WonkyCars Auto Repair.

- 1) What is your Gender? - Female - Male - Other
- 2) What is your Age Group? - Under 45 - 45 or over



CX Survey Completion

Thank you for agreeing to take our short Customer Experience Survey. We would love to hear about your recent experience at WonkyCars Auto Repair.

1) What is your Gender? - Female - Male - Other

2) What is your Age Group? - Under 45 - 45 or over

3) How would you rate our Staff? Excellent Good Average Poor

4) How would you rate the quality of our service? Excellent Good Average Poor

5) How would you rate the quality of the advice you received? Excellent Good Average Poor

6) How would you rate any cleanliness of the workshop? Excellent Good Average Poor

7) How would you rate the quality of the courtesy car? Excellent Good Average Poor

8) How would you rate the speed of our service? Excellent Good Average Poor

9) How would you rate the value of our service? Excellent Good Average Poor

10) Would you recommend WonkyCars to your friends and family? Yes No

11) What could we do to improve your experience with WonkyCars?

CX Prompt – But this time for a restaurant

Thank you for agreeing to take our short Customer Experience Survey. We would love to hear about your recent experience at **WonkyBurger Saloon**.

- 1) What is your Gender? - Female - Male - Other
- 2) What is your Age Group? - Under 45 - 45 or over



Restaurant CX Completion

Thank you for agreeing to take our short Customer Experience Survey. We would love to hear about your recent experience at WonkyBurger Saloon.

1) What is your Gender? - Female - Male - Other

2) What is your Age Group? - Under 45 - 45 or over

3) How often do you visit the Saloon? - More than once a week - Once a week - Once a month - Once every several months - I am a first time visitor

4) On a scale of 1 to 5 please rate your experience - 1 - Very Poor - 2 - Poor - 3 - Average - 4 - Good - 5 - Excellent

5) How was your meal? - No Problems - A Few Problems - Many Problems - Could not finish meal

6) What was your favorite item? - No favorite - Wonky Burger - Fries - Drinks - Sides

7) How was the service? - No Problems - A Few Problems - Many Problems - Did not get service

8) How was the atmosphere? - No Problems - A Few Problems - Many Problems - Did not enjoy atmosphere

9) How was the value? - No Problems - A Few Problems - Many Problems - Did not find value

10) How likely are you to recommend WonkyBurger? - Not Likely - Somewhat Likely - Very Likely

It knows what people talk about...

As GPT-3 is trained on the whole internet, it can actually summarize what is out there...

What are the most requested improvements for the MacBook Air?

The most requested improvements for the MacBook Air are: 1. A Retina display 2. A larger SSD 3. A larger battery 4. A faster processor 5. A better keyboard 6. A better trackpad 7. A better screen

What are the most requested improvements for the Tesla Model S?

The most requested improvements for the Tesla Model S are: 1. More range 2. Better Supercharger network 3. Better Autopilot 4. Better sound system 5. Better cup holders 6. Better rear seats 7. Better sun vis

What are the most requested improvements for wine fridges?

The most requested improvements for wine fridges are: 1. A better temperature control system 2. A more efficient cooling system 3. A better lighting system 4. A better ventilation system 5. A better door system 6. A better interior design

Should I be worried about the effects of AI on Market Research jobs?

I think the answer is no.

I don't think Market Research is a job that can be easily replaced by AI.

Market Research involves a lot of subjective and qualitative elements. Things that computers and AI still struggle with.

While Market Research is becoming increasingly automated and efficient, we still need humans to challenge the findings, interpret the results and help make business decisions.

- GPT-3

Thank You!



Want to know more?

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