

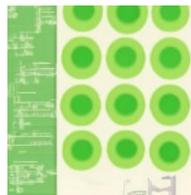


MULTI-TASK
MULTI-LINGUAL
MULTI-MODAL



Round table

M3G training school - Creative natural language generation



Marco Guerini (FBK) - Irene Russo (ILC CNR)
September 19-23, 2022
Ca' Foscari University of Venice



Ca' Foscari
University of Venice
Department
of Humanities

[ve]dph
Venice Centre for
Digital and Public
Humanities



Open questions about creative NLG

In the previous days...

- Could rule-based NLG models be creative as deep learning models?
- The role of agentivity: should creativity be associated with a creator?

Who is the creative agent?

- Is it the human using the NN?
- Is it the combination of human and NN?
- Is it the NN itself?

Questions about the creative agent

If a tool such as StableDiffusion empowers me to the point of revolutionizing a field such as advertising, is it still just a tool?

And if this tool is so powerful that it makes ME creative even if I was not before?

What is the role of prompting and prompt engineering? Is it a maieutics of NN?

Prompting and Creativity

Consider text to image models, prompting can require different degree of creativity:

- Prompting a detailed description
- Prompting an abstract description
- Prompting an abstract concept

Where is NN creativity located?

- **In the data?** Problem of having access to the training data to define what is really creative
- **In the decoding algorithm?** Stochastic/probability based methods vs typicality based? Most probable words vs the most “surprising”.
- **In the neural network itself?** Is it a matter of quality of connections or quantity?

NN creativity and data

- "a beret-clad marathon runner stopping to taste oysters in front of a man wearing devil horns"

NN creativity and data

- "a beret-clad marathon runner stopping to taste oysters in front of a man wearing devil horns"



The oyster tasting stop at the 38th kilometer



NN creativity - an emergent phenomenon?

- **With big enough NNs is creativity is going to naturally emerge?** As we already see with other characteristics, we can expect this. NB: single capabilities can emerge without having an AGI.

Measuring output creativity

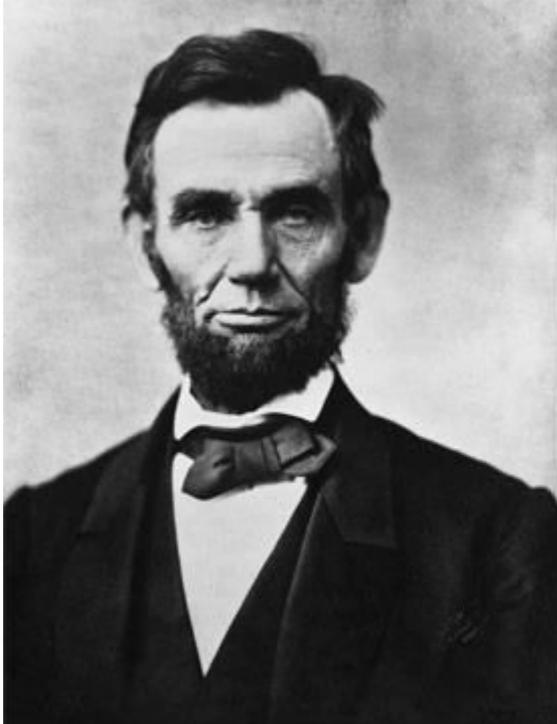
- **Is string novelty wrt training data enough?**

"the fancy pen is on the table" → 0 occurrences on the web, still...

- **Is a simple concatenation of already existing strings not creative?**

"As Abraham Lincoln said" + "Don't Believe Everything You Read On The Internet"

Measuring output creativity



**“Don’t believe
everything you
read on the
Internet just
because there’s
a picture with a
quote next to it.”**

—Abraham Lincoln

Creativity and style

Is the ability of replicating several styles that have never been explicitly encoded into new subjects a sign of creativity?

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Barack Obama - Edward Hopper style

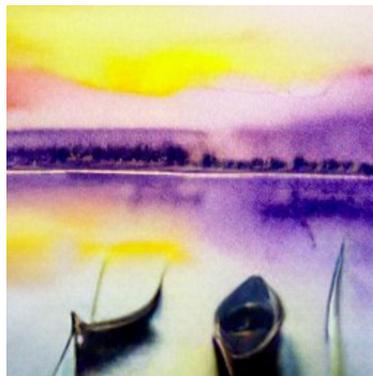
Open questions about creative NLG

- Possible application scenarios of Neurosymbolic AI to NLG? (i.e. Are there already techniques to integrate reasoning and learning in NLG? Are they really not compatible ways to approach NLG/NLP, as highlighted by some discussions among us?) (Cosimo Palma)
- As state of the art language models grow larger and larger, how should we evaluate the increased performance against the logistical, cost, and environmental issues that may arise from training and running huge systems like GPT-3, and beyond? (Hugh Ormond)
- Are there any hard limitations to creativity in generated language? Is it possible that for true creativity an environment that system can dynamically interact with and/or some form of embodiment is required? (Cezary Klamra)
- What creative NLG uses is there with NooJ?
- Do you think a computer can be creative? Or is creativity only a human quality (i.e., attributed to the programmer)?
- What do you think is an application where NLG actually works properly?

Contest: paintings with Venice's lagoon as subject



a



b



c



d

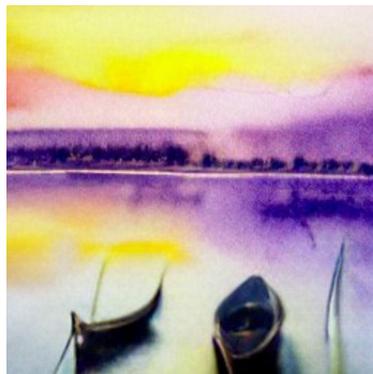


e

Contest: paintings with Venice's lagoon as subject



generated with GLIDE



generated with DALL-E mini



Turner - The Lagoon near Venice, at Sunset



generated with GLIDE



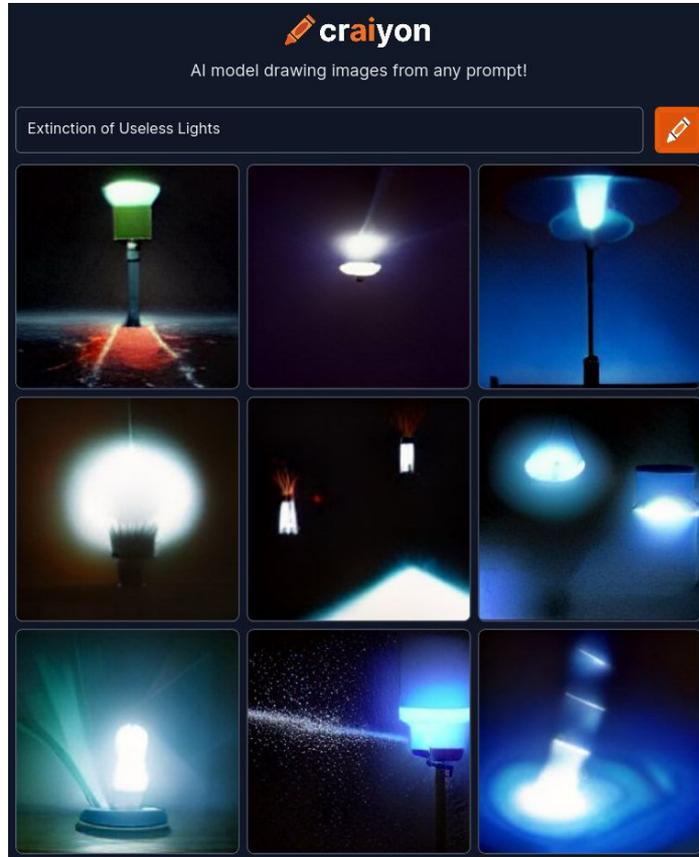
generated with DALL-E mini

Contest: paintings with the title “Extinction of Useless Lights”



Tanguy - Extinction of Useless Lights

Contest: paintings with the title “Extinction of Useless Lights”



Contest: paintings with the title “Extinction of Useless Lights”





Jason Allen, Theatre d'Opera Spatial

An A.I.-Generated Picture Won an Art Prize. Artists Aren't Happy.

"I won, and I didn't break any rules," the artwork's creator says.



CynicalObserver
Rochester | Sept. 3

Congratulations to Mr. Allen on coaxing an algorithm to spit out an image that looks like a 1970's prog rock album cover.

468 Recommend Share

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GMO
South Carolina | Sept. 3

No, humans did not lose. Humans made A.I. Humans can program A.I. to self destruct, or just pull the plug, and poof! it's gone.

76 Recommend Share

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Sophia
chicago | Sept. 3

I'm disgusted. Machines aren't artists. This is definitely cheating. Learn to draw and paint.

I don't know. This is going on as we become stupider, meaner and less competent.

Look at our test scores.

I'm sorry. I can't be the only person who is really disgusted by this. We are turning away from what's right and true, into a world of lies.

19 Recommend Share

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Mark F.
Cockeysville, MD | Sept. 3

I need an AI program to decipher half of these posts. And an aspirin.

6 Recommend Share

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