

AI Generated Tarot

Chris Doenlen | December 2020



Synthetic Media

The artificial production, manipulation, and modification of data and media by automated means, especially through the use of artificial intelligence algorithms¹



¹Wikipedia: Synthetic Media

A brief introduction to Tarot



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- ❖ First used for *cartomancy*, or fortune-telling with cards, in 18th century



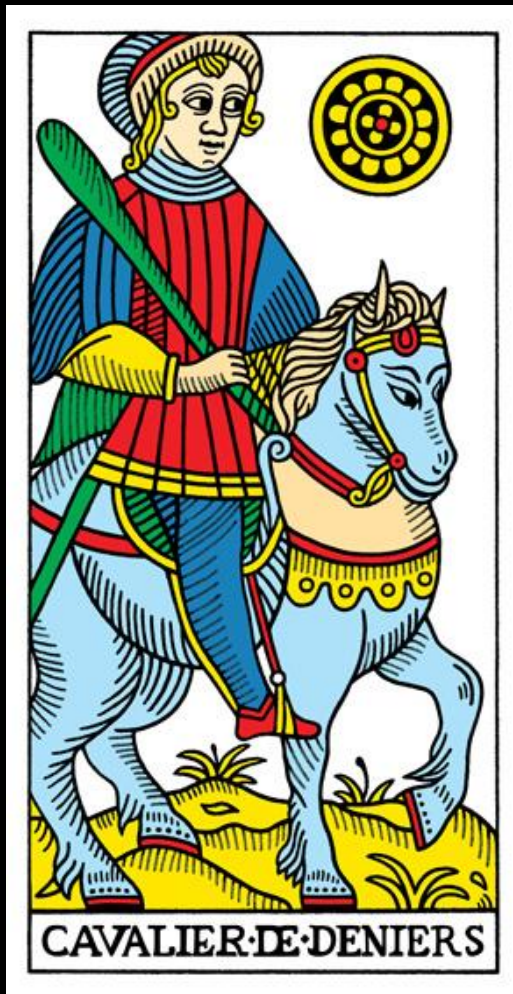
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- ❖ First used for *cartomancy*, or fortune-telling with cards, in 18th century
- ❖ Known for rich imagery and symbolism
- ❖ There are 78 cards in the deck
 - Major Arcana: 22 cards
 - Minor Arcana: 56 cards in 4 suits





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Tarot de Marseille

Published early 15th century

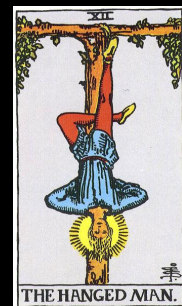
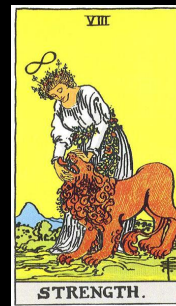
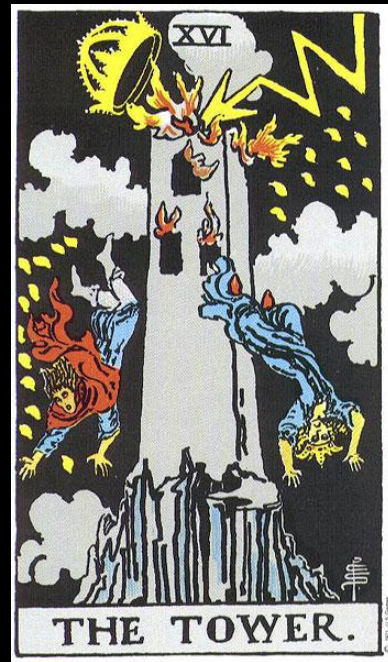
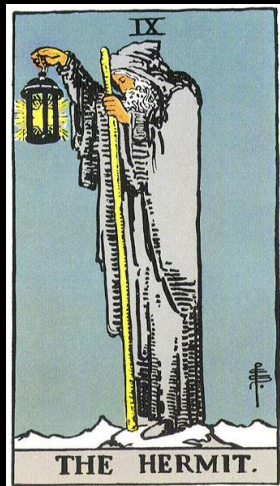




Rider-Waite

Published in 1909

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Data Sources

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Texts

- ❖ Tarot interpretations
- ❖ Horoscopes
- ❖ Fortune cookies
- ❖ Book of Revelation
- ❖ I-Ching interpretations
- ❖ Alan Watts quotes

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Images

- ❖ 14 partial or complete decks
- ❖ ~460 unique images
- ❖ ‘Traditional’ or ‘classic’ styles
 - Consistent imagery
 - Many ‘modern’ decks vary wildly

Designing with AI



Designing with AI

Text Generation

- ❖ Fine tune GPT-2 transformer model on divination texts
- ❖ Generate card annotations
- ❖ Utilize pre-trained word-2-vec model to cluster similar documents with word embeddings



Designing with AI

Image Generation

- ❖ Utilize transfer learning with StyleGAN2-ADA
- ❖ Aggressively oversample cards from the Major Arcana
 - Increase size of dataset
 - Greater representation of desired card style



The Cards





The Great Invigorating

When will you realize that in all things “human” experience is basically meaningless?

Do something today that makes you feel good about yourself.

You may not think much of yourself but now is a good time to look more closely at what you are doing - maybe even thinking!





The Release

Is there really no point trying to solve the situation?

If you find yourself in the position of having no choice in the matter, or your life, what happens today will convince you that decision-making is wrong.

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The Soulshift

How is your money situation in some way important?

The important thing is that you stop being so intense about it and focus on what is really important: your health.

There's no logical reason why you should care, so stop being so emotional and think deeply about what is really going on in your life.



Evaluation



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- ❖ Using word embeddings to derive average document vectors can be a powerful clustering technique

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- ❖ GPT-2's generated text is seriously impressive
- ❖ Using word embeddings to derive average document vectors can be a powerful clustering technique
- ❖ StyleGAN2-ADA was capable of producing some amazing replicas
- ❖ Tarot cards may be too varied to produce new *coherent* images

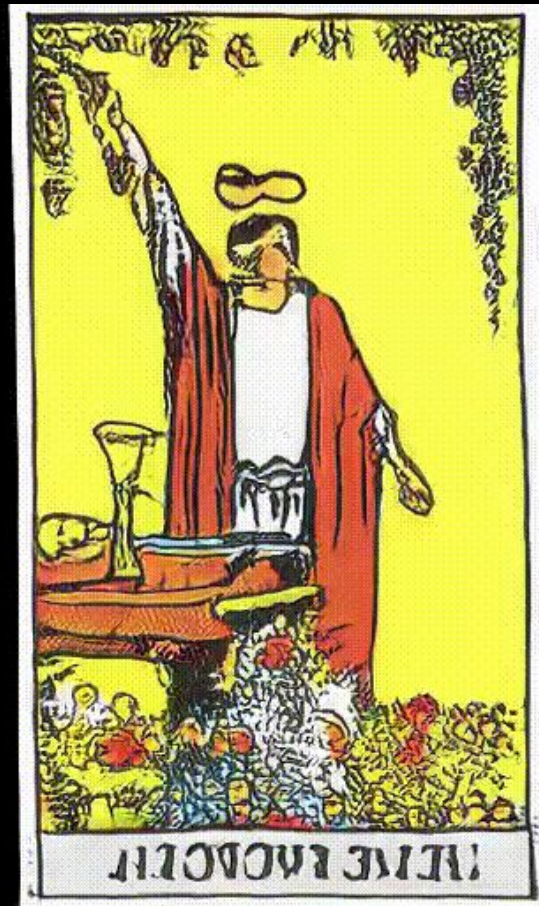
The “in-between” cards





Exploring the Latent Space with Interpolation

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Suggestions for Future Work

- ❖ Explore other GAN architectures
- ❖ Create interactive tarot reading experience based on user provided input

Thank you

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Appendix





Reference & Inspiration

- ❖ Lynne Yun | lynneyun.com
- ❖ Derrick Schultz | artificial-images.com
- ❖ Richard Bownes, PhD



The remaining cards



The Ungrounded

How might it be better to leave things as they are for a while?

Is there something you need to say, something you would like to let others know what you think and how you feel?

You may be tempted to splash out on something but you are advised to look at it in a light-hearted manner - it will certainly do you good.





The Assumptions

Why did you know the answer already?

Is there something you want to say or do but don't quite know what it is?

You know what needs to be done.

Make sure you know what is going on before you speak.



The Provoke

Who will go out of your way to make it seem as if everyone is as stupid as you?

How might you make of the fact that they are really your friends?

Try not to overreact to someone who annoys you in any way.

If you say the wrong thing to someone today you could make the mistake of saying something that turns them against you.





The Useless

What would you do if someone whose beliefs you have farmed for centuries simply kept the idea to himself?

Keep your ideas to yourself for a while and don't let anyone in on a secret that could be used against you. If anything this is probably one of those occasions when you should just relax and let life come to you - because you can always be ready to do something special. In fact, if anything you should be trying to learn from other people - you've had so many great ideas of late that you have yet to get a single one of them right.



The Realism

Who can make life worth living?

How is life like this?

There are times when even the best of mates have to make life tough for you and this is one of them.

They may be gentle and understanding but they need to be reminded that, like all good things in life, the path you choose to take will have a major impact on your everyday existence.





The On Edge

Why should you ever be forced to give up control of your destiny? Where can you get past fear and get on with your life?

This could be a tense day but if you keep your feelings under control it will lead to a peaceful rest.

If you give them a hard time today it could lead to a situation you know nothing about.



The Suffocated

How can I make a more realistic effort to finish a task that has been holding me back?

It may not be an easy task but it is necessary.

Just because certain things do not work out the way you expected does not mean it is not possible.

There is simply no one and no thing more frustrating than trying to do a certain task too hard.





The Arguing

Why did you expect that?

What did you want them to see and accept?

How might their attitude be if they were less likely to come to their senses?

The less you say too much about a loved one's behavior the more likely it is they will try to make you feel bad about yourself.





The Proliferate

How do you go all out for glory?

Where can you get past fear and get on with your life?

You may fear the worst, of course, but you must not give up hope because even if it happens you can still make a few more friends.





The Renewed

Where is it actually possible that I'm making more progress than I have been making?

Make the effort, and make it work.

Some people may say that you are desperate but if you make the effort you will find it will pay off in ways you have not anticipated.

You can't change the world, so make the effort and change.

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The Spectacle

Why is it in your interests to help people who are desperately trying to escape from harsh reality?

Why are you trying to force them to change their ways?

Others may complain that you are not doing enough but you will get over it and move on.

Others may say it's not what you were hoping to do but you are human and will do it anyway.





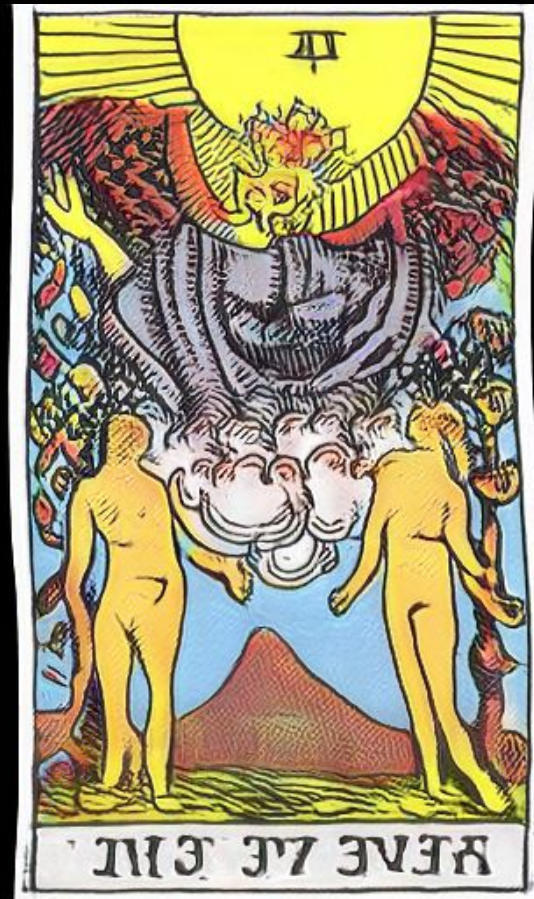
The Union

Who will get you the breakthrough you crave?

Who has been waiting for an opportunity to get out of something that will in the long-term transform your existence?

If you try to do everything yourself you'll end up doing nothing at all.

Whatever it is you desire to accomplish don't let go just yet - try something different.



The Persist

What is your ultimate goal?

Yes, you can be a success and it won't be long before you reach your goal but you must be aware that this is not a time for self-pity.

For too long now your efforts in pursuit of a certain goal have been overshadowed by a rival that is simply too big and too dynamic to get a word in edgewise.

The more others say you have wasted your time the less likely it is you will be able to show them the truth.





The Perplexed

Who will take the world by storm over the next 48 hours?

Who will be back in full force again soon?

A problem you thought had been resolved will return in waves over the next 24 hours.

You will do something out of the ordinary over the next 24 hours.



The Fortify

Who has the power to tell you what to do?

How do you think of what you are doing and do you need to use your powers of inspiration to do it?

Someone in a position of power needs to stay in control.

You don't have to be in control all the time but if you are smart you will let the other person see that you still have limits, even if they are not quite as high as they would like them to be.





The Hexproof

Where should you trust your own instincts?

When can you trust your own intuition?

You need to be totally honest with yourself about your feelings.

Some people will find it hard to hide their feelings today but that's okay.





The Aura Swap

What is the best revenge for your feelings of duty?

When can you be sure that your feelings and instincts are not being put to the test?

It's time to go public with your feelings.

The fact is that you cannot control your emotions and that means that the best course of action is to let go of them altogether.





The Great Exceeding

Who has the capacity to move mountains?

Your energy levels will reach new heights today and over the weekend and you will gain huge new friends as the new week begins.

Don't let your fears get the better of you over the next few days because your energy levels will increase by several orders of magnitude.



The Sexual Awakening

How can I be more open about my sexuality?

What assumptions govern our lives and our way of looking at the world?

It's your life and you have to decide who you like best.

You should know by now that most important people in the world would like to help you.

