AI-PATTERNS :

Notes from the first meeting:
(just quick, will format later)

Joscha Bach: AI, patterns, and consciousness:
http://bach.ai/
Joscha Bach: Artificial Consciousness and the Nature of Reality | AI Podcast #101 with Lex Fridman

- General intelligence is the ability to see patterns and then predict them (to make models)
    - Understanding of your complex structure/patterns
- Turing test is asking the potential intelligence to describe intelligence
    - Intelligent enough to understand themselves

Joscha Bach: We need to understand the nature of AI to understand who we are

- AI: the only math we can only do is computable
- Classical math uses infinities which aren't computable
- PI is function that gives you as many digit as you can afford: a finite number of bits
- Computation mathematics (constructive mathematics) cannot do geometry (no continuous operations/infinities), instead only approximations can be done by taking a large set of cellular automata, taking a series from them and then *squint*

Actually I think this talk Joscha gives may be the most accessible and coherent, although gos through some AI stuff that may be repetition:
35C3 - The Ghost in the Machine

Nicki Case: learning through play/interacting with systems:
https://ncase.me/
Particularly: https://ncase.me/trust/

Douglas Hofstadter
Analogy as the Core of Cognition

Ivan Illich
Deschooling Society: https://archive.org/details/DeschoolingSociety
"Deschooling Society" FULL Audiobook by Ivan Illich

Stephen Wolfram
A New Kind of Science:
https://en.wikipedia.org/wiki/A_New_Kind_of_Science
Rule 110: https://en.wikipedia.org/wiki/Rule_110
Universality in Elementary Cellular Automata

Wolfram Physics Project:
https://www.wolframphysics.org/technical-introduction/

Andrew Kortina
https://kortina.nyc/essays/consciousness-as-computation-learning-from-deep-learning-and-information-theory/

AI related links:
Two Minute Papers

Possible directions:

- Connecting cellular automata to attention mechanisms / consciousness as computation
  - Bach: Consciousness as the tight loop off awareness of the control of attention

- Raytracing with AI:
  - Differentiable Rendering is Amazing!
  - Semi-related:
    - Super resolution: This AI Performs Super Resolution in Less Than a Second
    - Style transfer: Style Transfer...For Smoke and Fluids! | Two Minute Papers #264
  - Can an AI learn the rules of an automata system?
  - Could the rules of the automata be decomposed into functions and the sum of the functions is the function that the AI is trying to learn?

- Transformer model vs LSTM:
  - Harmonics and oscillators for attention
  - https://deepmind.com/blog/article/A_new_model_and_dataset_for_long-range_memory
- Meta-learning

    - https://deepmind.com/blog/article/Agent57-Outperforming-the-human-Atari-benchmark
- AI models
    - Continuous Probabilistic CA
    - Differentiable model of morphogenesis
- I would like to find what else has been done connecting CA with ML
    - In particular this makes me think of some things I've briefly heard about positional / timing memory systems in human brain where potentially there is some CA-like firing that helps create transformer-like harmonics?
- I'd like to brainstorm a bit about how to make a connection between an audience and the delight we find in CA/ML so perhaps an analogy that more people can connect with that can be represented through CA systems… not sure what that would be!
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Things I've done or been working on that aren't publically available:

Creo Animam concert: http://creo-animam.net/

I went through some old writing about my ideas about an alternative system, but they are pretty embarrassing and things have evolved a bit in my mind. Probably time to write up a new description of what I imagine.

Here is a link to something I wrote for a grant that is a bit more recent:
https://drive.google.com/file/d/1s69ujq0sDuvFvzabMduVZVQ0QkiSczgB/view?usp=sharing