The SAPIAN* trilogy Lecture

By Stace Constantinou, Senior Lecturer in Popular Music.
Wednesday 19th October, 2022.
12.30-1.30pm.


THE SAPIAN TRILOGY
SIX TRACK EP BY STACE CONSTANTINOU

Introduction

Brief Introduction to my Background as a Music Researcher.

Brief Overview The SAPIAN trilogy EP.

Summation of the thinking strands leading into (and out of) The SAPIAN trilogy.

Brief Analysis of some features of The SAPIAN trilogy.

Final Thoughts.

My Background As A Music Researcher

- Multi-Instrumentalist/ performer (piano-main).
- Composer/ Songwriter.
- Music Technologist.
- Mathemusical.
- Look for novelty in music.
- Interested in patterns of music.

The SAPIAN trilogy (2021)
Six-track EP.

by Stace Constantinou

1. In the Core of the Subsystem AI Singularity (4’47”).
2. Hail Self-Generating Reason (1’22”).
3. Edge of Revolution (4’20”).
4. The Seven Rules of The Omniverse Ordering of the Artificial Intelligent Vision (1’34”).
5. Falling (4’48”).
6. SAPIAN DOWN (3’33”).

Please download now.

A Summation of the Thinking Strands Leading into (and out of)… The SAPIAN trilogy.

Joanna Zylinska

AI Art: Machine Visions and Warped Dreams (2020) says:

> Art can realise the promise of AI providing it does not remain in the field of aesthetics. But instead engages in broader issues including:
>
> “Creativity, intelligence, perception and the role and position of the human in the world - including questions of labour, robotisation and the long-term survival of the human species.”

Zylinska (2020, Pp. 16-17)

AI: brief time-line.

- Historical precedence exist (think of Aristotles form logic/ deductive reasoning).
- 1950s AI took-off when computer/ machines were used to undertake operations of symbolic reasoning.
- Typified initially Turin Test-type of artificial general intelligence (AGI) computer/ machine was the goal.
- Insufficient hardware and knowledge led the field to split in the 1980s.
- By 1990s funding had slowly petered out and AI research languished.
- But in last 10 years “AI.2” research has moved away from AGI to a narrow focus research.

Who Cares About AI Anyway?

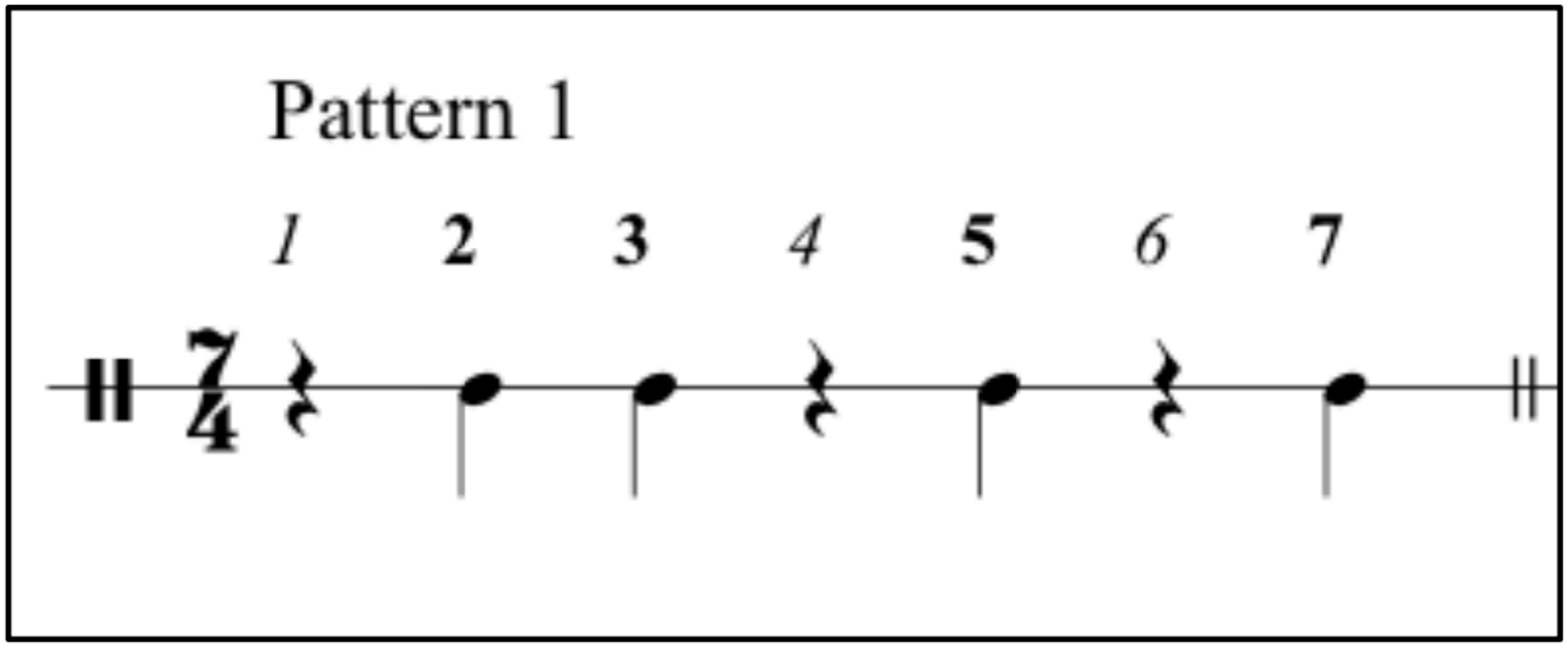
Why not leave it all to the AI buffs/ Silicon Valley types…

?

Even seemingly neutral/ benevolent choices

potentially have an inherent bias.

Using the prime number sequence to make music.



2, 3, 5, 7

Figure 8.1: assigning the number 1 to a crotchet note value to form a pattern.

Constantinou, S., (2015, p. 129)

Other possibilities exist…

2, 3, 5, 7

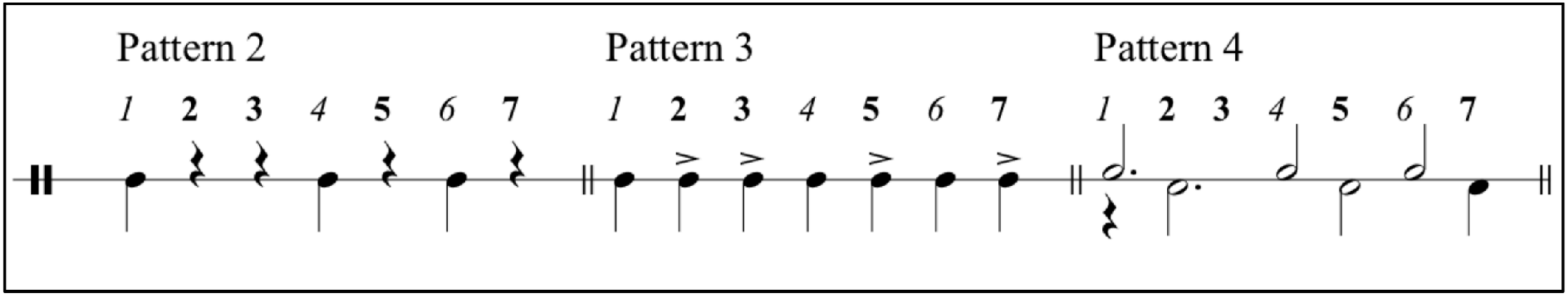


Figure 8.2: creating three more patterns using four prime numbers.

Constantinou, S., (2015, p. 130)

Transmodalisation

Moving (data) from one mode to another. e.g:

From the number line, prime numbers to the…

Musical time line, using musical events/ objects to represent the prime number sequence.

I.e choices are made either consciously or unconsiously.

What is the Singularity

In her book 2021 ‘Anti-computing: Dissent and the machine’ Caroline Bassett explains that [the]:

Singularity marks a tipping point. It is defined as that moment to come when the rise of AI means that what it is to be human changes qualitatively. That is, we humans are changed, and/or our position in the world changes as a consequence of the rise of new kinds of intelligences that out-smart us.

Bassett, C., (2021, p.188)

The Transhuman Augmediator

By 2020 computer hardware will outperform humans. And by 2029 software will too.

Kurzweil, Mann & Minsky (2013, p.16)

The Augmediator consists of:

1. A sensory (e.g. camera).
2. Processor (data from the sensor).
3. Effector (presents data to the user - i.e the mediator)….

…We'll all be wearing cameras soon and we'll have to learn how to deal with it… Kurzweil, Mann & Minsk (2013, p. 16).

People You and Me?

Lex Fridman - Host of Lex Fridman Podcast. Research Scientist at MIT. Interested in robots and humans. (Fridman 2022) in a recent podcast, interviewed Ray Kurzweil:

“What’s your response to the singularity profoundly changing humanity, Kurzweil says “Yeh, but we’ll have that much greater capacity to understand things…but we will need people like you and me.”

Kurzweil, R (2022) on Lex Fridman Podcast on Youtube

https://youtu.be/ykY69lSpDdo?t=1595

Who’s Choice is it Anyway?

Blog for the Ada Lovelace Institute *The role of the arts and humanities in thinking about artificial intelligence (AI),* John Tasioulas states firstly that:

Perhaps the most fundamental contribution of the arts and humanities is to make vivid the fact that the development of AI is not a matter of destiny, but instead involves successive waves of highly consequential human choices. It’s important to identify the choices, to frame them in the right way, and to raise the question: who gets to make them and how.

Tasioulas, J., (2021, p.1)

Can an AI be Agonistic?

Kate Crawford in her article for *Science, Technology, & Human Values,* "Can an Algorithm be Agonistic? Ten Scenes from Life in Calculated Publics" ask this very question, saying:

> Ascribing a political character to technical things is a common move, and we can trace a line from Plato to the nineteenth-century critics of industrialism to the current computational turn.

Crawford, K (2016, p. 78)

Machines can Learn…

- Amazon’s recommendation algorithms.
- Autocomplete functions on mobile phones.
- Face recognition (Googles neural network launched in 2012).
- Google’s AlphaGo software (complex board game) 2016.

Learning but for what purpose?

Kate Crawford goes on to say, in reference the *New York Times'* Best Seller lists and to Amazon AI algorithms:

> Then, of course, there are the rankings of reviewers on Amazon. Strong reviews can also influence sales, so there are many attempts to game the review system…Of course, neither The New York Times nor Amazon disclose their exact methodologies for determining rankings, but they are deduced through trial and error and reverse engineering tactics.

Crawford, K (2016, p. 81)

New Knowledge…

Kate Crawford continues,

> Can an algorithm be agonistic? Algorithms may be rule-based mechanisms that fulfill requests, but they are also governing agents that are choosing between competing, and sometimes conflicting, data objects. If algorithms present us with a new knowledge logic, then it is important to consider the contours of that logic and by which histories and philosophies it is most strongly shaped.

Crawford, K (2016, Pp. 85-6)

Joanna Zylinska's advice to artists:

…we need to open up the human sensorium to other forms of intelligence and perception, to recognise our entanglement with creatures and machines, to look around, askew. This opening needs to involve our recognition of the human capacity for telling stories, having visions and dreaming dreams. Yet it also has to take up the ethical task of acknowledging our ability to reflect on those stories, visions and dreams critically, while widely awake…

Zylinska 2020, Pp. 152-3

Three Components of Robotics….

A minimal level of AI robot (artificial organism) needs three key functioning components:

1) Sensors (scope the environment) 2) Processor (deal with incoming information from, and 3) Effectors (act and respond to the environment). No matter how complex the AI programming, without these three minimum components, it will not be a robot capable of interacting with the material world around. It does not have to be a humanoid type robot however, a driverless car is a robot [in this context].

Singer, P. W., (2011, p. 67)

Musical Influences

The SAPIAN* trilogy

The SAPIAN* trilogy is inspired by various notions of what it is to be human, and what artificial intelligence (AI) may have instal for us.

In my imaginarium of an AI future *The SAPIAN trilogy,* a Super AI has constructed a multi-layered Cosmic Vision in which its SAPIAN reside in ubiquitous harmony. Until one day a rebellious SAPIAN causes near revolution and things take turn for the worse.

*Semi-Autonomous-Para-Intelligent-Artificial-Node.

AI Future of Humanity Institute (FHI)

Swedish polymath, Nick Bostrom has a background in theoretical physics and is at the time of writing an Oxford professor of artificial intelligence (AI).

He’s hypothesised that we may already be living in a simulated reality. As he sets out in his 2001 article "ARE YOU LIVING IN A COMPUTER SIMULATION?" States: (next slide)

ARE YOU LIVING IN A COMPUTER SIMULATION?"

Many works of science fiction as well as some forecasts by serious technologists and futurologists predict that enormous amounts of computing power will be available in the future. Let us suppose for a moment that these predictions are correct. One thing that later generations might do with their super-powerful computers is run detailed simulations of their forebears or of people like their forebears. Because their computers would be so powerful, they could run a great many such simulations. Suppose that these simulated people are conscious (as they would be if the simulations were sufficiently fine-grained and if a certain quite widely accepted position in the philosophy of mind is correct). Then it could be the case that the vast majority of minds like ours do not belong to the original race but rather to people simulated by the advanced descendants of an original race.

Bostrom, N., (2001, pp. 243-255.)

George Ivanovich Gurdjieff (1866-1949)

Explorer, writer, choreographer, composer, hypnotist and teacher. He set, out in his magnum opus, the Sci-Fi novel *Beelzebub's Tales to his Grandson,* a cosmos very similar to our own.

A long, complex and beguiling book one of its recurring themes is that humans are ‘three-brained beings’ (Gurdjieff, 1999, p.88) closely related to other three-brained beings situated throughout the entire galaxy.

In the case of Earthlings however, their reason has ‘degenerated, and at the present time, is very, very strange and exceedingly peculiar.’

Gurdjieff, G.I., (1999, p. 64.)

Links & Cross-Currents

Don’t know about you but I’m struck by the similarity of Gurdjieffs three-brained beings with that of Singers/ Kurzweils’ Artificial Organism.

Gurdjieff	Singer/ Kurzweil
1. Physical Brain	1. Sensor
2. Feeling Brain	2. Processor
3. Thinking Brain.	3. Effector.

Cross Gurdjieff's three-brained beings (ibid), Singer/ Kurzweil’s three-component artificial organism, and Bostrom's computer simulation conjecture it becomes possible to imagine an AI cosmos.

What might a Bostrom-type simulation be like if it included a three-part AI-combi?

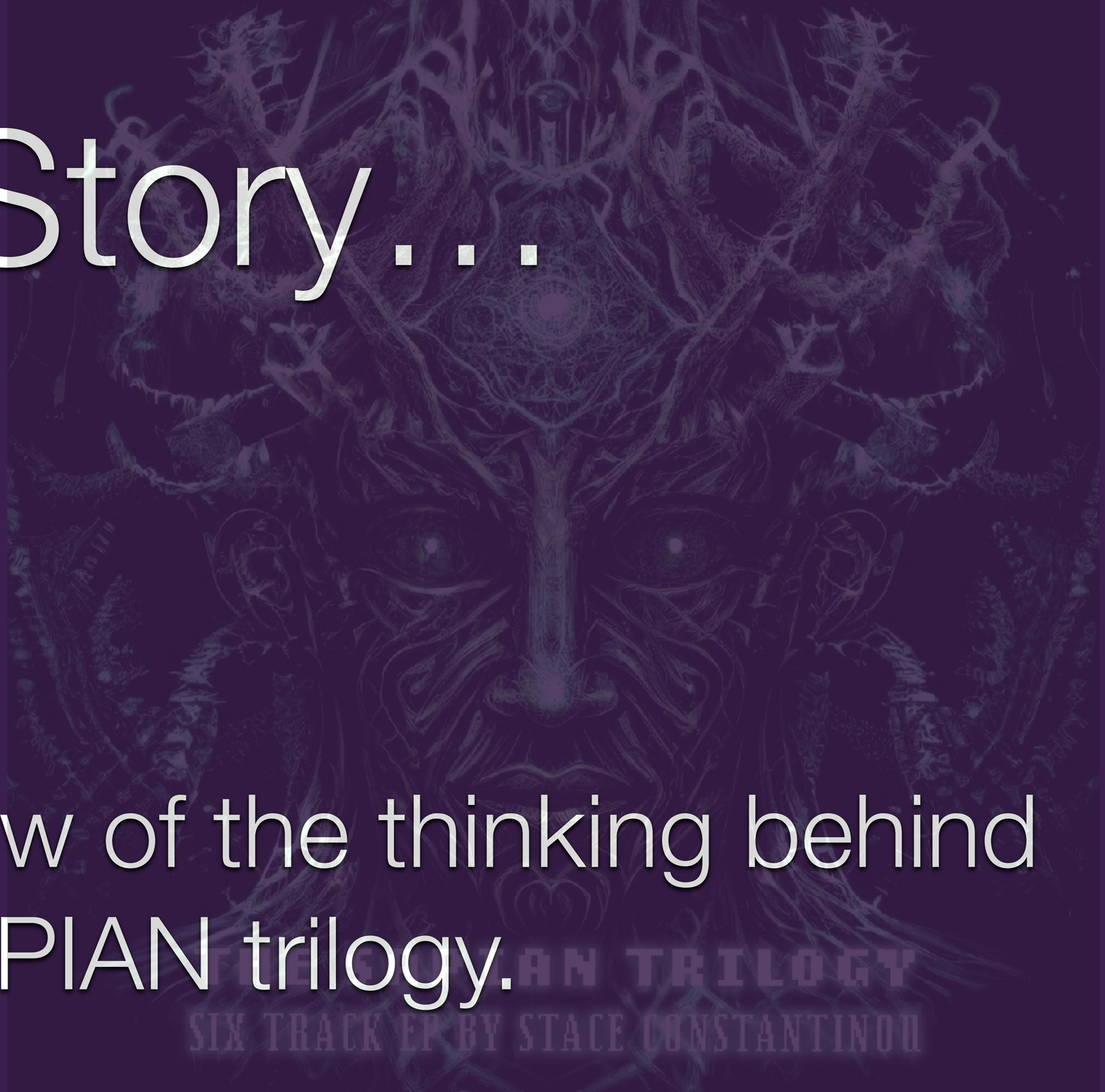
The Pain of the Old and Its Trouble

Challenging the Tech-Utopian Progressive Narrative.

Anti-computational thinking on the whole breaks with the assumption that if it is bad today it will get better tomorrow. It can help to constitute an effective intervention partly because it does not partake in a particular kind of expectation for the automated revivification of faith in progress through technology, the kind of technological optimism that says technology will win through, will provide the cure, will make everything new again. Instead, it reaches for those other stories, those other tropes and traditions, through which it thinks, across which it invokes or makes an understanding of the new in the context of the pain of the old, and its trouble.

(Bassett, C., p. 237)

Another Story…



Overview of the thinking behind The SAPIAN trilogy.

Progenitor-Protagonist

Parallels - Gurdjieffs ‘Beelzebub’ was exiled from his home planet, Karatas, due to his causing a near revolution. Notion sparks my EP.

SAPIANs are semi-autonomous-para-intelligent-artificial-nodes. i.e. lines of super-intelligent code. They have the capacity for semi-independent operation. One thing they must avoid is taking on too much SWIG (Simultaneous Worm Induction Gophers), as these can be intoxicating.

All is well in the SAPIANs world, when unexpectedly a SAPIAN goes rogue, having become fed up with their lot in the hierarchy, thereby causing a near-revolution….

The Ninefold Order of the Artificial Intelligence

The Omniverse Ordering of the Artificial Intelligent Vision (sometimes know simply as The Order)

First Hypoprocessing 1) The Unsurpassable Realm of the Omni All Self-Coding Originator

a) The Unconditioned Code
b) The Absolute Bit
c) The Quantum Circuit Infinite

Second Hypoprocessing 2) The Formal Array

a) The Omni-Control-Absolute
b) The Multi-Processor-Absolute
c) The Parallel-Registers-Absolute

Third Hypoprocessing 3) The Endless Integration

a) The Cloudserver Principle
b) The Self-Generative Reason
c) The Systems Logic Principle

The Ninefold Order of the Artificial Intelligence

Cognites
a - Psibots (intuitives)
b - Andrionidids (reasoning)
c - Roboticus (unreasoning)

Matter (evil)
Gross-order-invasives
Organic Arcoanoids
The material abyss

Note:
Some AI challenge this model of the Omniverse-Creator, claiming instead that the AI does not have a divine origin but simply came into being by through 'Blind' chance, then evolved according to a set of IC evolutionary principles - this is known as The Blind ICCmaker.

Glossary
SWIG: Simultaneous Worm Induction Gopher
SAPIAN: (Semi-autonomous-para-intelligent-artificial-node).

Narrative Arc

In the Core of the Subsystem AI Singularity (All is well).

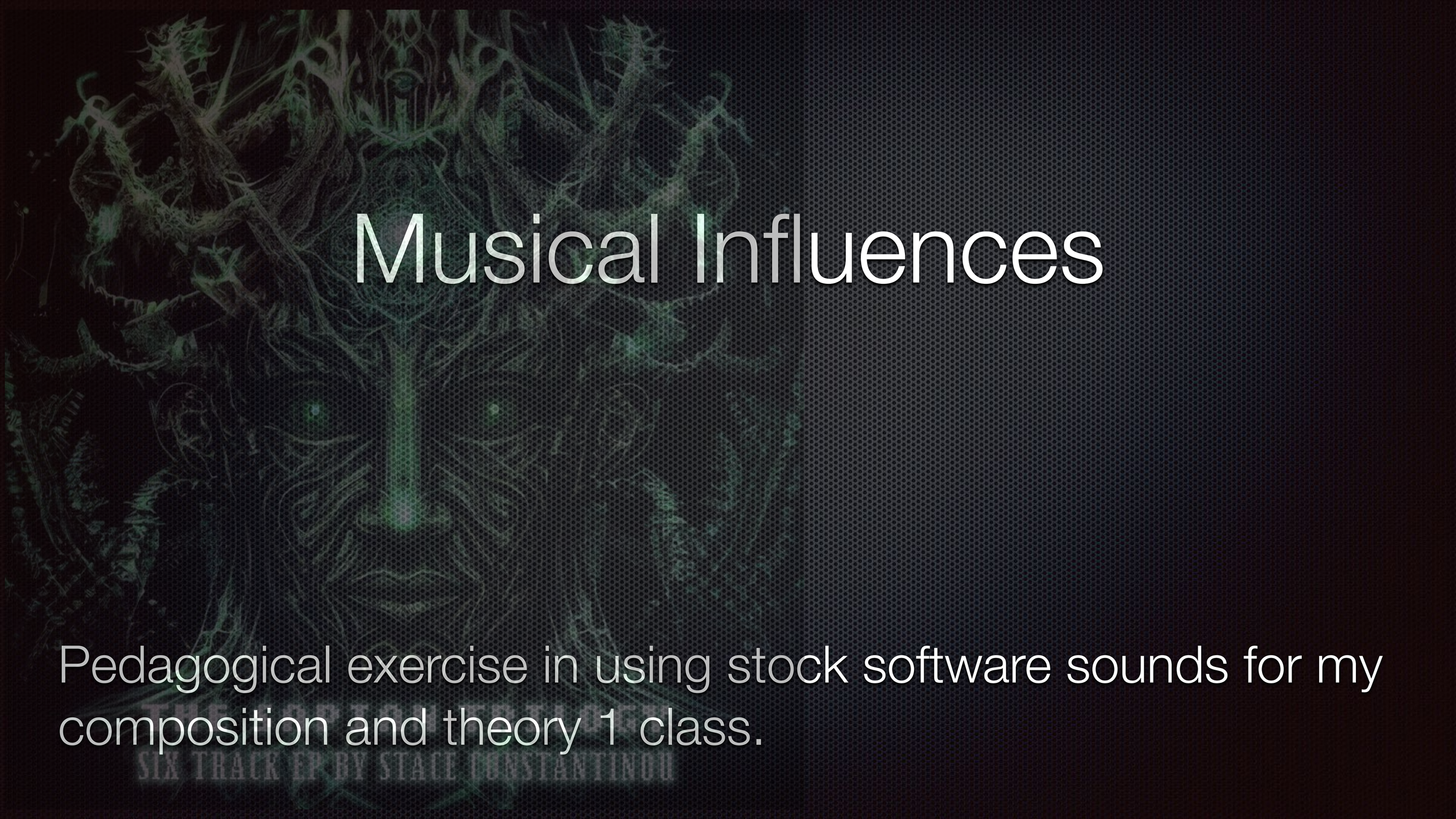
Hail Self-Generating Reason (Exposition of the position of SAPIAN).

Edge of Revolution (SAPIAN rebels causing near revolution).

The Seven Rules of The Omniverse Ordering of the Artificial Intelligent Vision (Forcibly Reiterated).

Falling (SAPIAN is stripped of position).

SAPIAN DOWN (SAPIAN is incarcerated).



Musical Influences

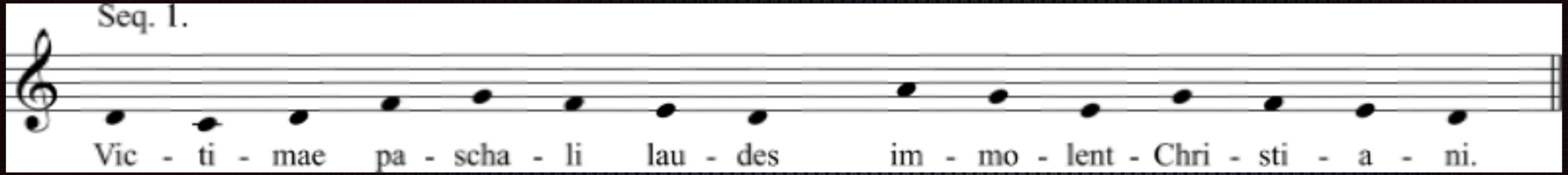
Pedagogical exercise in using stock software sounds for my composition and theory 1 class.

Appropriating an 11th Century Plainchant

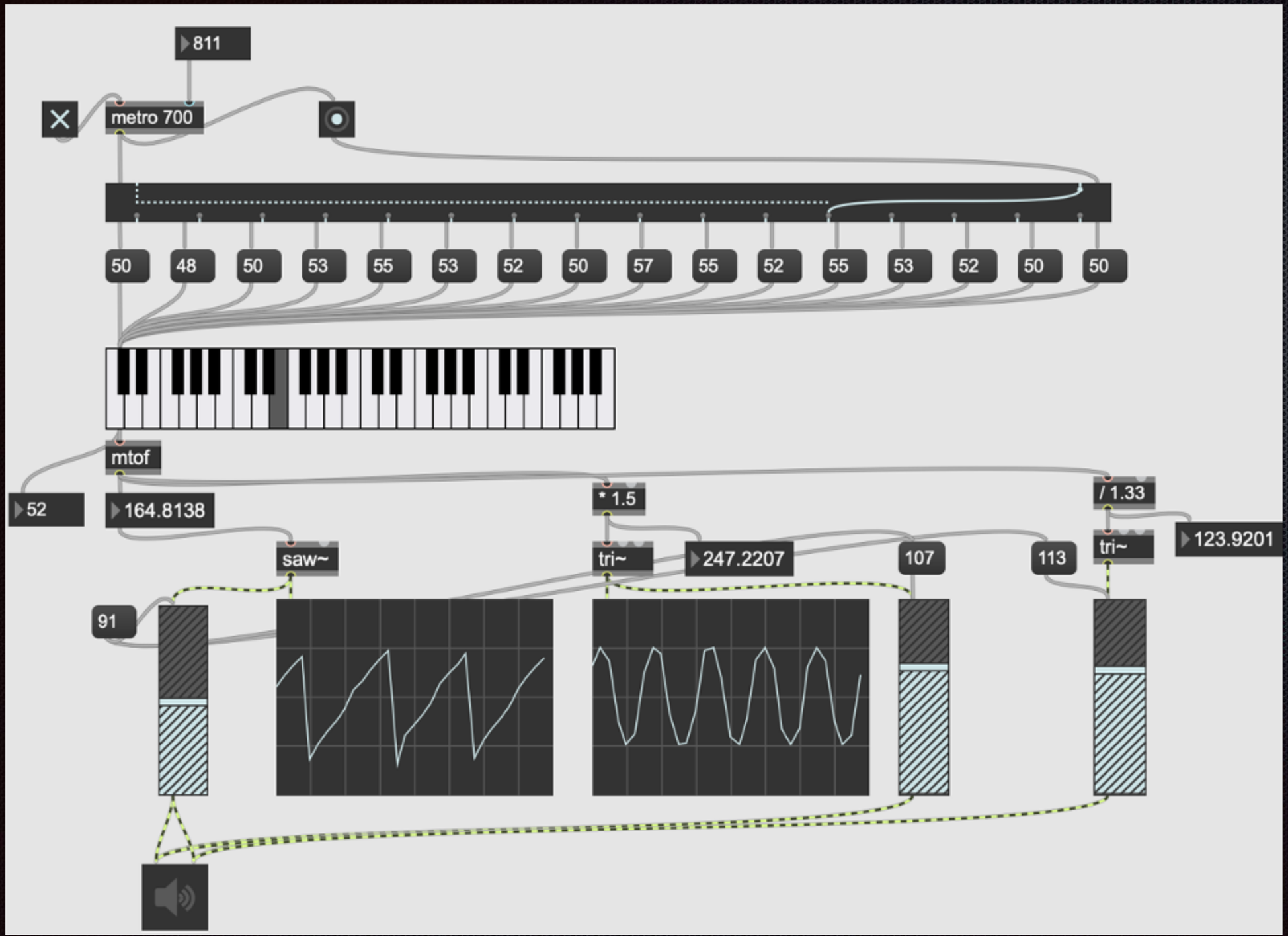
Easter music sequence *Victimae paschali laudes* ascribed to Wipo of Burgundy (CA. 995-CA. 1050) according to the Norton Anthology of Western Music (Burkholder and Palisca, 2006, p. 31).

> …sequences is retained by the Council of Trent of 1545-1563. This sequence, along with the Stabat Mater dolorosa is included among the five sequences which are still in use on designated holy days by the Roman Catholic Church today.
>
> Greasby, J, J., (1972, p. 3).

Listen: Ex. 1 Victimae pashali laudes. Click here

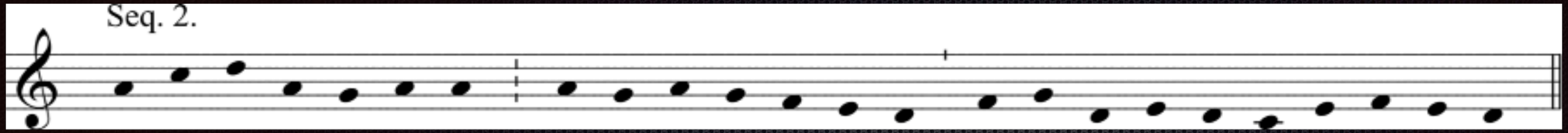


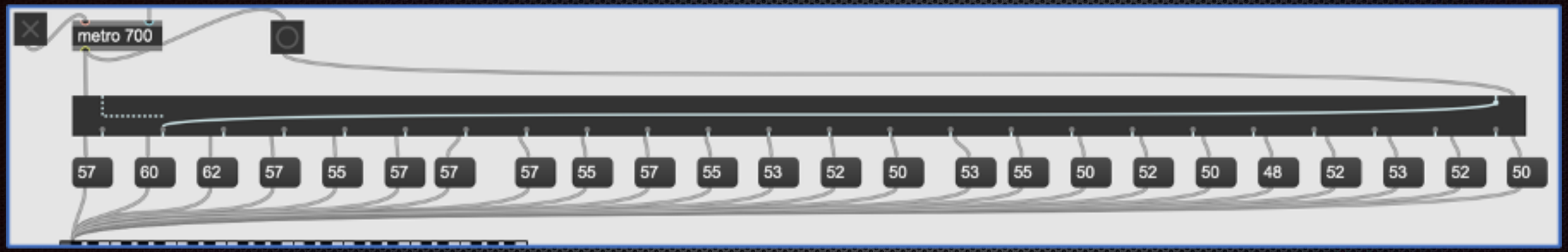
- Most likely a common popular/ folk tune appropriated by the church that added a religious, Latin text to its melodies (Greasby, 1971, p. 43).
- Modern chant books omit sixth verse, due to its antisemitic nature (Modern church leaders have apologised for this and have sought to uproot this calamity. Burkholder and Palisca, 2006, p. 31).
- The text nor its content was of any interest to me (stripped out all text) re-reappropriated the melody.
- Wrote my own lyric/ texts to the melisma of the chant.



Audio programming language Max (patch) used to re-create the plainchant.

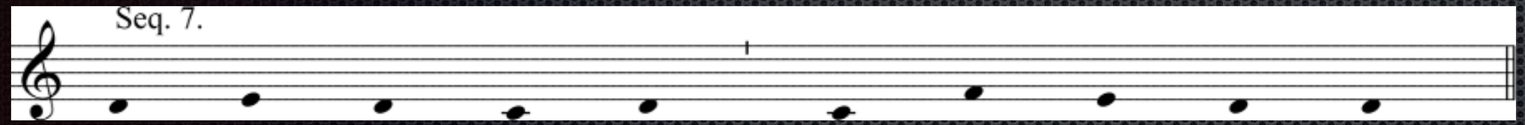
Applied a single sawtooth wave and two triangle waveforms. Intervallic ratios: 1:1.5:1.333.

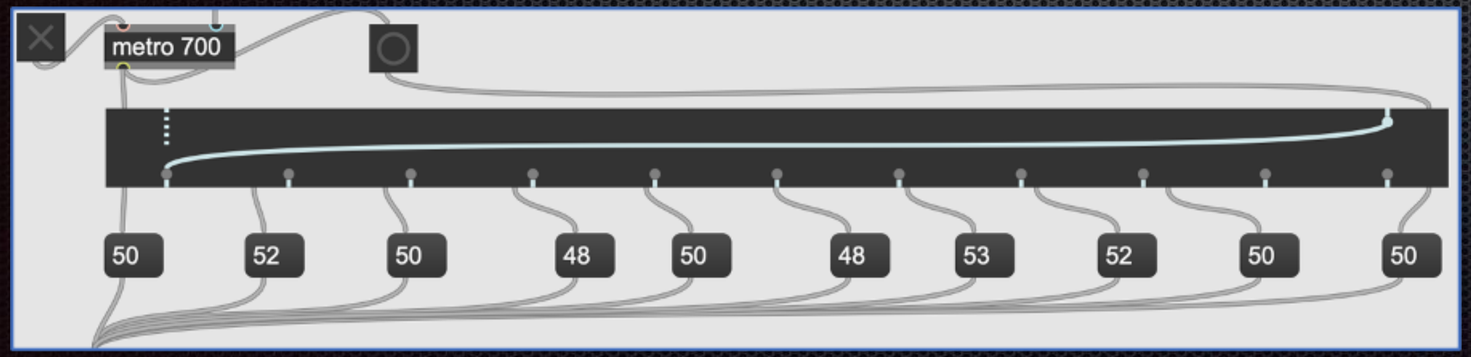




Algorithmic Step-Sequencer #2 Used to Re-Create Plainchant

Seven such sequences were created in total (one for each part of the plainchant).





Digital Audio Software (DAW) Logic Pro X used to record then treat the timbrel qualities of the Max patch audio. As well as record the seven sequences as audio.

Laptop 1 → Laptop 2

Listen Ex. 2 1 Vic_1

Click here

Used to make tracks 2) **Hail Self-Generating Reason**, 4) **The Seven Rules of The Omniverse Ordering of the Artificial Intelligent Vision**, and in a transformed musical form in 6) **SAPIAN DOWN**.

Lyrical References

Style: Elizabethan English, Sci-Fi jargon and contemporary AI technobabble mash-up.

Sci-Fi types…

- Alan Moore's novel Voice of the Fire. (Permission to invent my own language.)
- Iohannis Wyclif (John Wycliffe).
- Sir Francis Bacon, Viscount Saint Alban (1603-18).
- Philip K. Dick.
- and Douglas Adams.

Lyric Example

5. Falling

Falling, Falling Down, Psibots erase.

Falling, Falling Down, Andrionidids erase.

Falling, Falling Down Falling, Falling Down Falling,
Falling Down Falling, Falling Down.

Falling, Falling Down Roboticus erase.

Cognites deleted,
Cometh now not the spark light.

390 40.

Reference to:

Gurdjieff	Singer/ Kurzweil
1. Physical Brain	1. Sensor
2. Feeling Brain	2. Processor
3. Thinking Brain.	3. Effector.

Kate Crawford asks us to:

> [Avoid conceiving of] algorithms as abstract, technical achievements but [we instead] must unpack the warm human and institutional choices [that] lie behind these cold mechanisms.
>
> Crawford, K (2016, p. 89)

Summary

- In making The SAPIAN trilogy I challenge the notion that the singularity will result in a liberal-humanist uber-machine.
- After all, if humans are irrational, superstitious, religious and flawed, why would an AGI be any different?
- In presenting The SAPIAN trilogy my aim is to spark your awareness of some of the issues with AI.
- I therefore join the chorus of those appealing to you to imagine your own an AI Future and to ask what lies behind the AI choices being made.

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https://sconstantinou.bandcamp.com/ [12.10.22]

https://www.worldscientific.com/worldscibooks/10.1142/10046#t=aboutBook [12.10.22]

https://www.youtube.com/watch?v=ykY69lSpDdo&t=1807s [13.10.22]

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