



**Artificial Digitality**

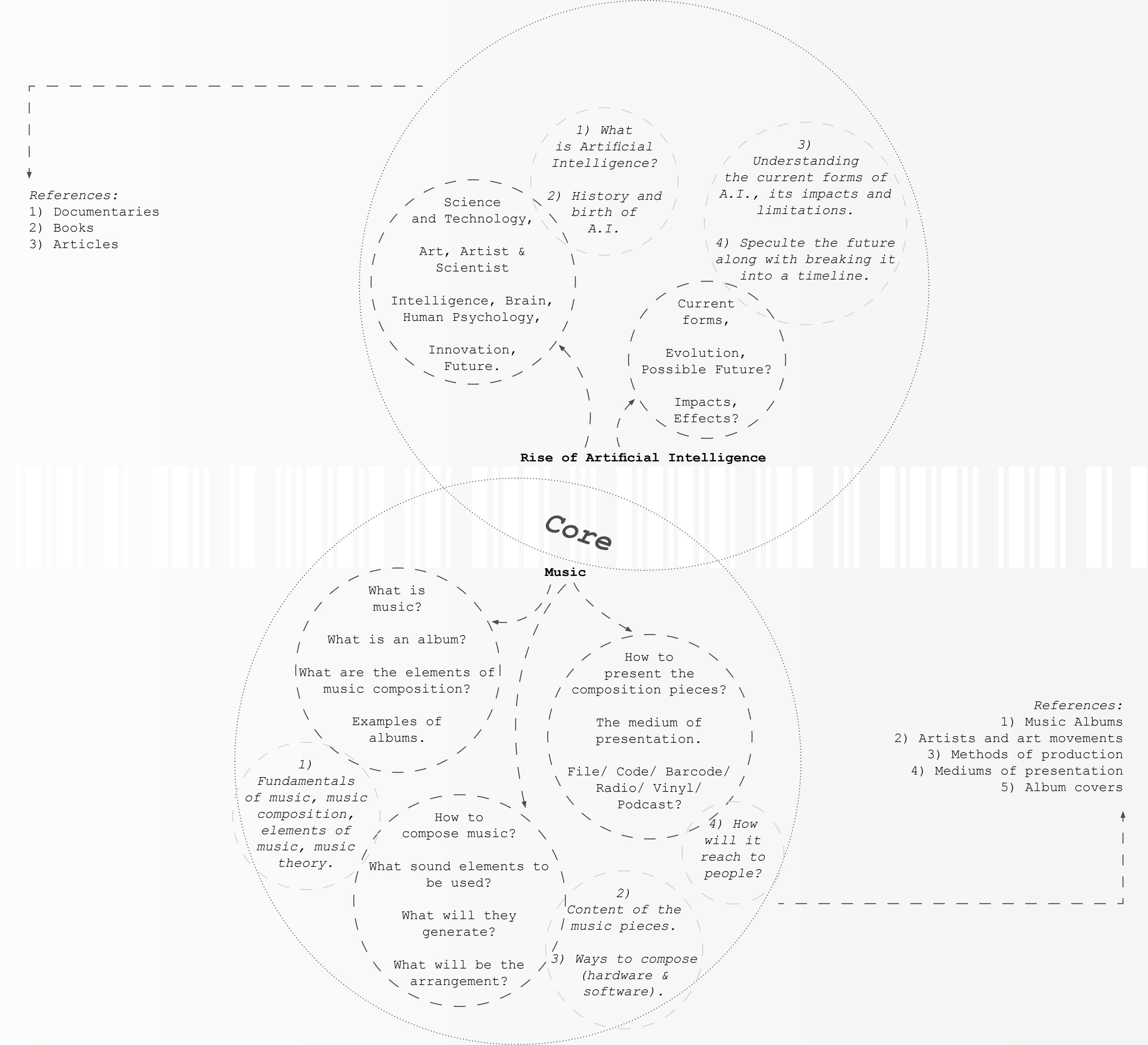
Concept:

- 1) “Expressing the **rise of Artificial Intelligence** via music: then, now and speculate into the future”

World from no A.I. to world run by A.I.  
Subject: Rise of AI and Medium: Music Album.

I have been indulged in music production and selflearning music for five years, but what I still lack is a unique concrete outcome. To satisfy this, I am turning towards Technology, who will assist me in my creative process to achieve my goal. The specific technological form that will able to do so is Artificial Intelligence.

## Simplification:



**OPINIONS**

## 10 Documentaries On Artificial Intelligence That Are A Must Watch

PRIYA SINGH - AUG 11, 2017

Basics of A.I., History, Forms, Related Fields, Computer Science, Algorithms, Future, Engineering.

# Artificial Intelligence

A Modern Approach  
Third Edition

Stuart Russell  
Peter Norvig

## Statistics Tutorial

Are you baffled by binomials, puzzled by proportions, dazed by distributions, or just plain stymied by statistics? Stat Trek's free, on-line Statistics and Probability tutorial can help. >[Begin lesson 1](#)

### About the Tutorial

This tutorial covers statistics, probability, and survey sampling. It is designed to get you productive as quickly and painlessly as possible.

After completing the tutorial, you will be able to:

- Compute the probability that a particular event will occur.
- Use the right probability distribution (normal, t, binomial, etc.) for your analysis.
- Estimate population means and proportions, based on sample data.
- Determine margin of error and confidence levels.
- Test hypotheses about means and proportions.
- Choose the sample design that yields maximum information.
- And much more . . .

Topics are introduced in short, easy-to-understand modules. Most lessons include one or more review questions to test your knowledge.

### How to Use This Tutorial

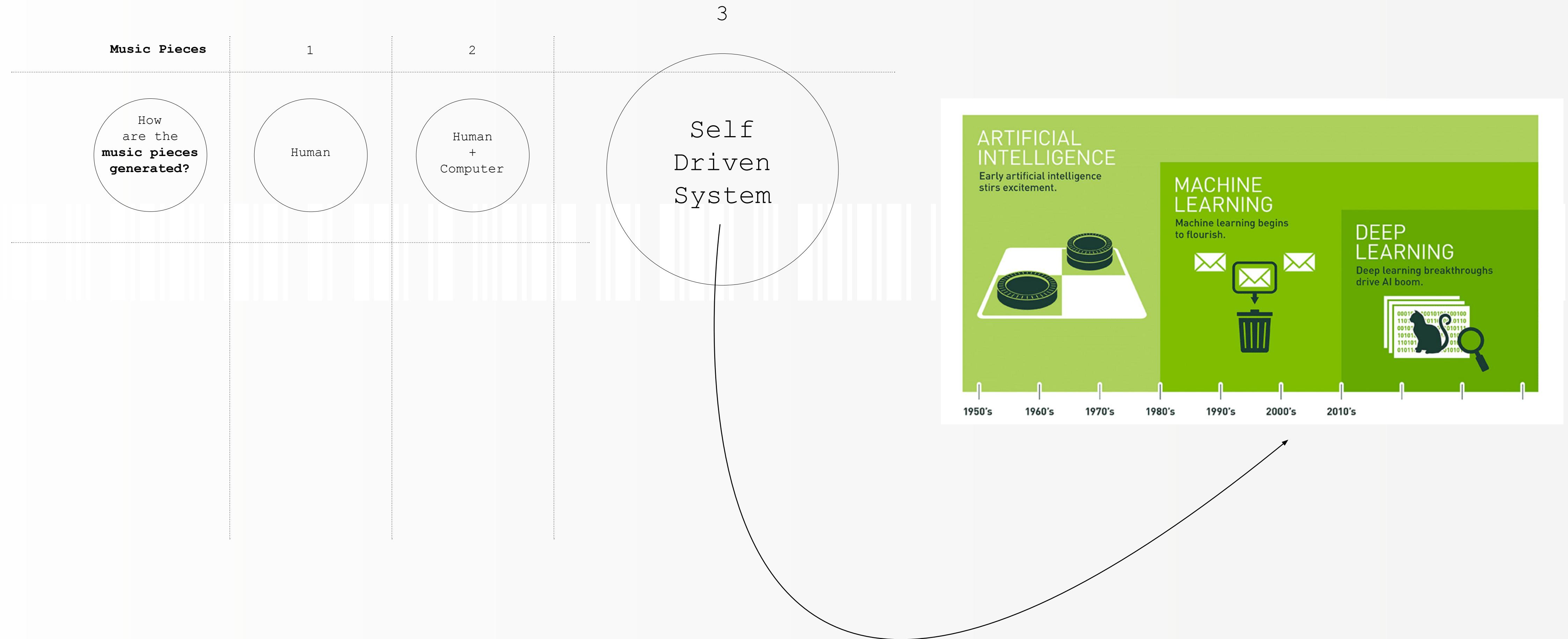
Individual lessons are accessible directly through links on the left side of the page. If you are already familiar with probability and statistics, you can skip the first few lessons and work effectively.

However, if you are new to statistics, you should work through all the lessons, because each lesson builds on previous lessons.

Mathematics,  
Algorithms,  
Data,  
Probability,  
Permutation,  
Combination,  
Probability,  
Formula,  
Statistical  
analysis.

Resources:

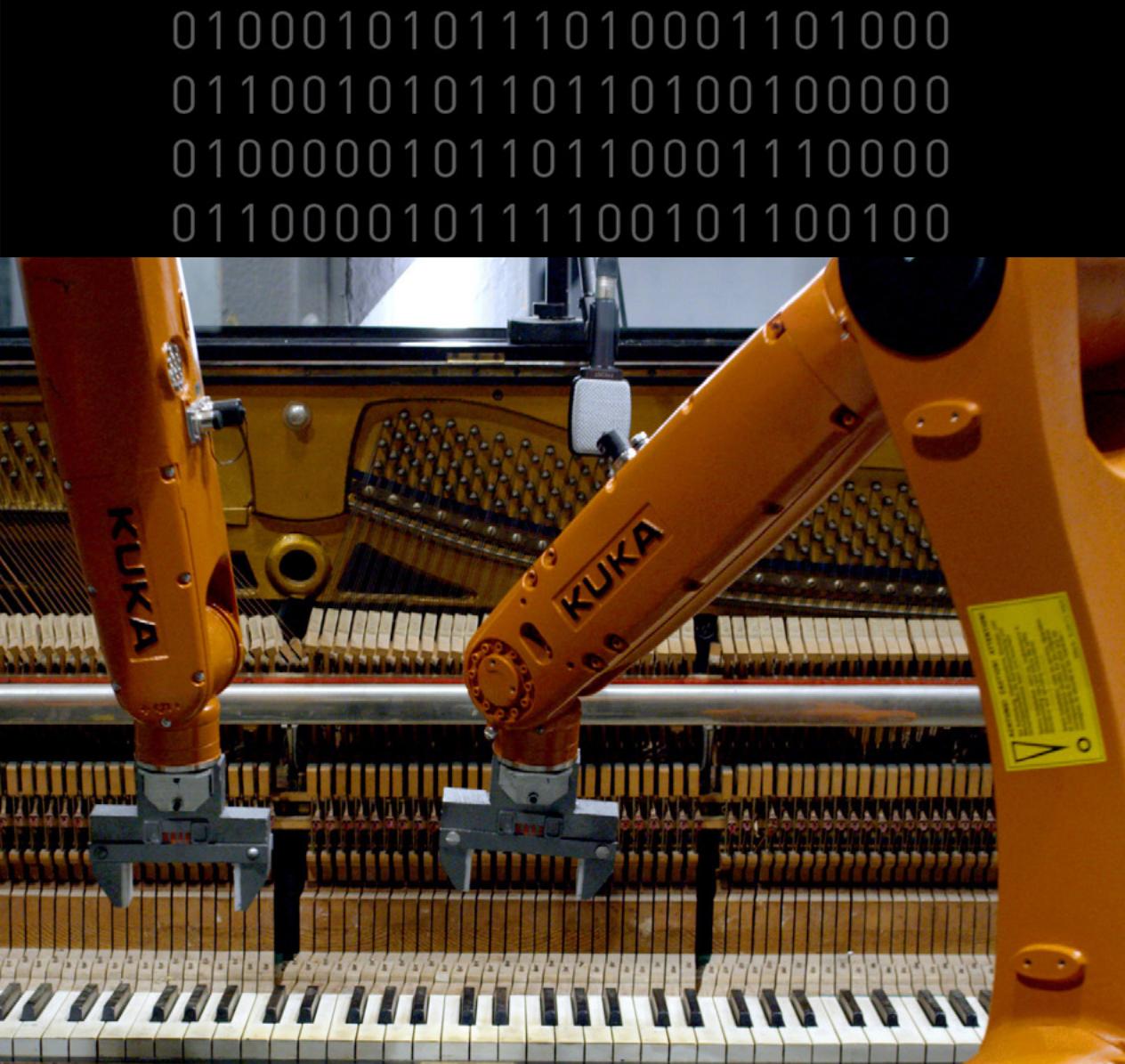
Journey of Artificial Intelligence:



The specific type of Artificial Intelligence who will be able to help me achieve a self driven system is Machine Learning.

# MACHINE LEARNING

## ETHEM ALPAYDIN



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THE MIT PRESS ESSENTIAL KNOWLEDGE SERIES

### Machine Learning for Artists

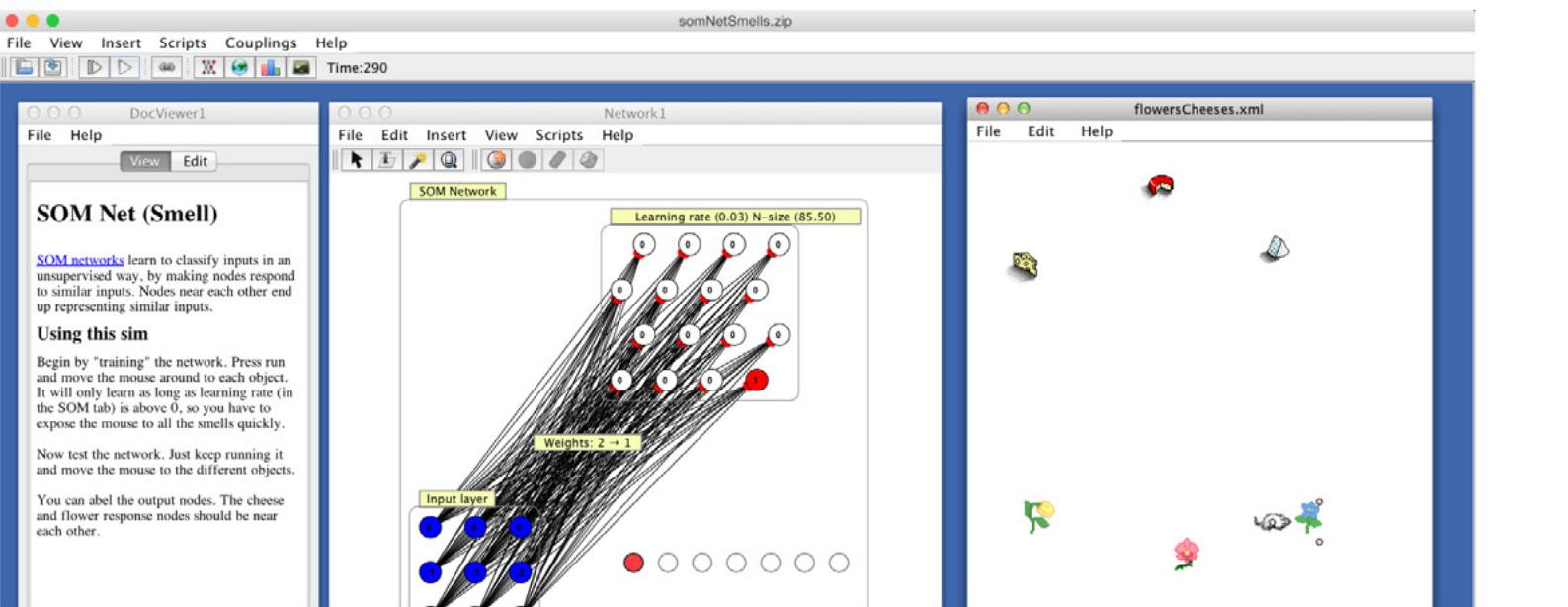
ml4a.github.io is an in-development book about machine learning, being written (@genekogan) and Francis Tseng (@frnsys). Expected first draft: March May 2017 mid-2017.

*Why the delays?* The delays in the release schedule can be attributed to two factors:

**simbrain**

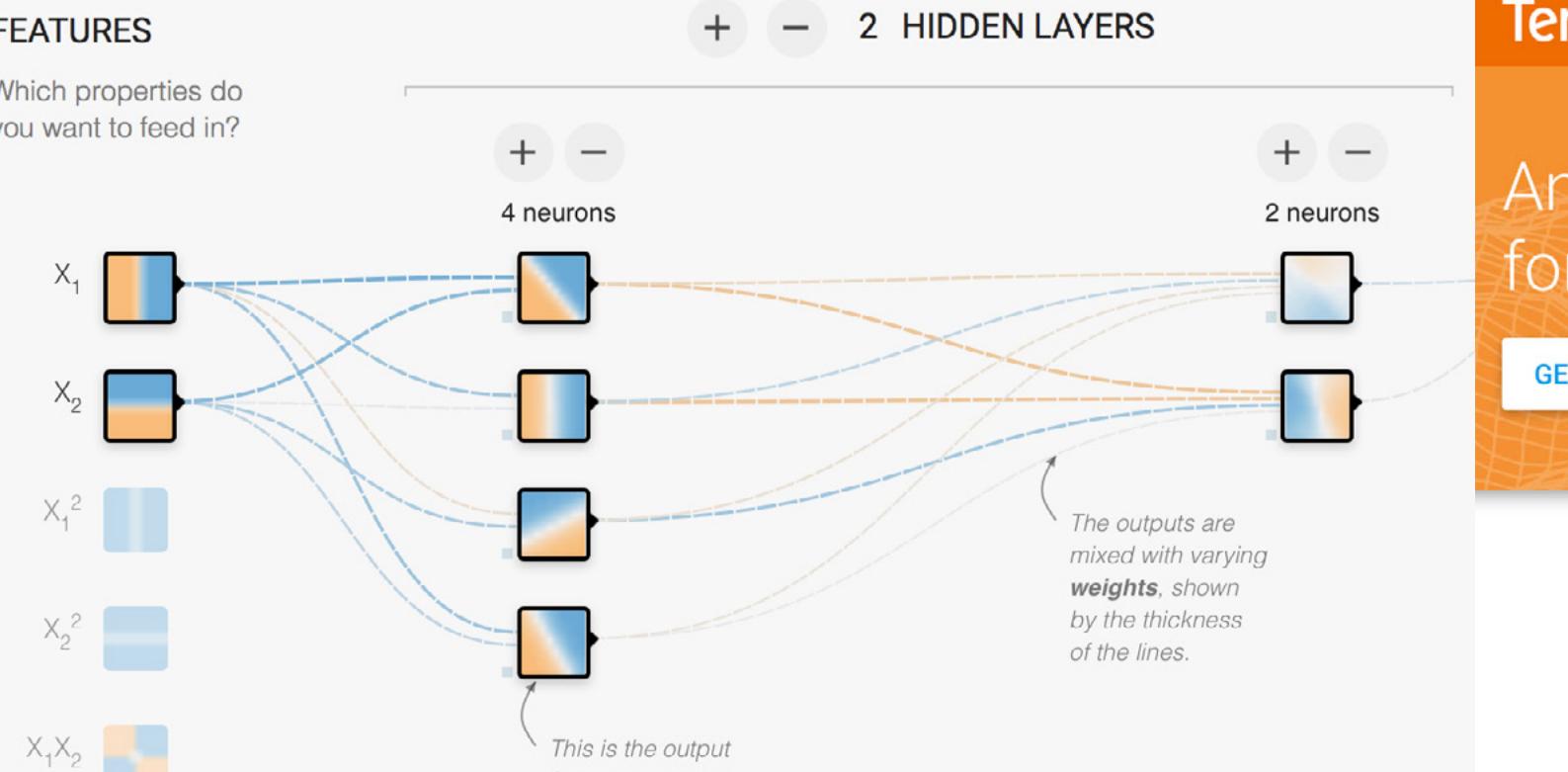
DOWNLOAD YOUTUBE DOCUMENTATION SCREENSHOTS GITHUB API DOCS

SIMBRAIN is a free tool for building, running, and analyzing neural-networks (computer simulations of brain circuitry). Simbrain aims to be as visual and easy-to-use as possible. See our [design goals](#). Unique features of Simbrain include its integrated "world components" and its ability to represent a network's state space. Simbrain is written in Java and runs on Windows, Mac OS X, and Linux. To get a better sense of how Simbrain works, see our [youtube channel](#), check out the [screenshots](#), or just [download](#) the software and start experimenting. Simbrain is open source, and constantly evolving. We'd love for you to join our [team](#). To discuss any aspect of Simbrain check out the [forum](#).



Tinker With a Neural Network Right Here in Your Browser  
Don't Worry, You Can't Break It. We Promise.

Epoch 000,000 Learning rate 0.03 Activation Tanh Regularization None Regularization 0



AI Experiments ▾

## The Infinite Drum Machine

Thousands of everyday sounds, organized using machine learning.  
By [Manny Tan](#) & [Kyle McDonald](#)

**magenta**

Home Blog Datasets Demos Discuss GitHub

## Welcome to Magenta!

Jun 1, 2016 • Douglas Eck ([douglaseck](#), [douglas\\_eck](#))

We're happy to announce Magenta, a project from the [Google Brain team](#) that asks: Can we use machine learning to create compelling art and music? If so, how? If not, why not? We'll use [TensorFlow](#), and we'll release our models and tools in open source on our GitHub. We'll also post demos, tutorial blog postings and technical papers. Soon we'll begin accepting code contributions from the community at large. If you'd like to keep up on Magenta as it grows, you can follow us on our [GitHub](#) and join our [discussion group](#).

### What is Magenta?

Magenta has two goals. First, it's a research project to advance the state of the art in machine intelligence for music and art generation. Machine learning has already been used extensively to

**TensorFlow**™

Install Develop API r1.3 Deploy Extend Community Versions

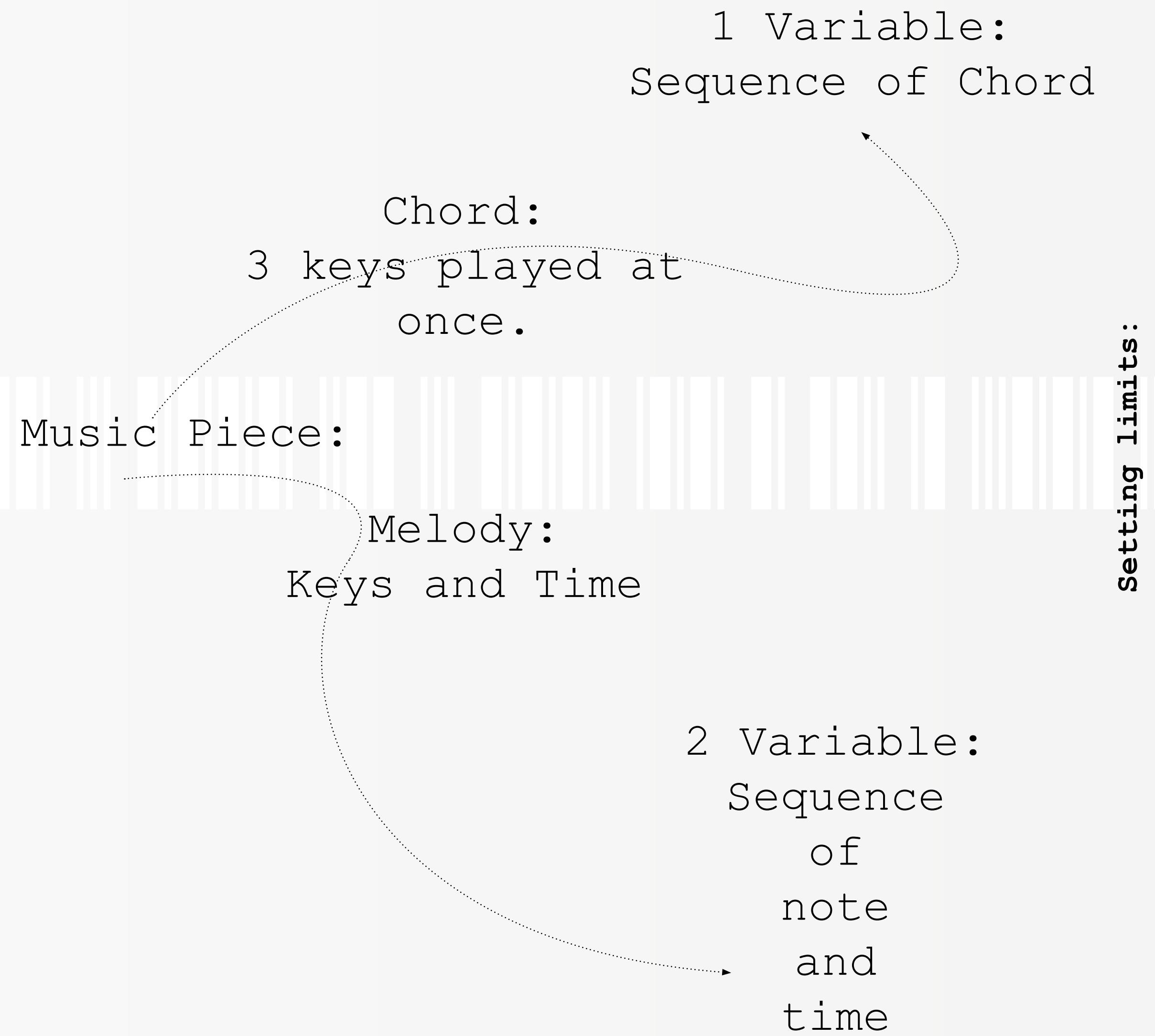
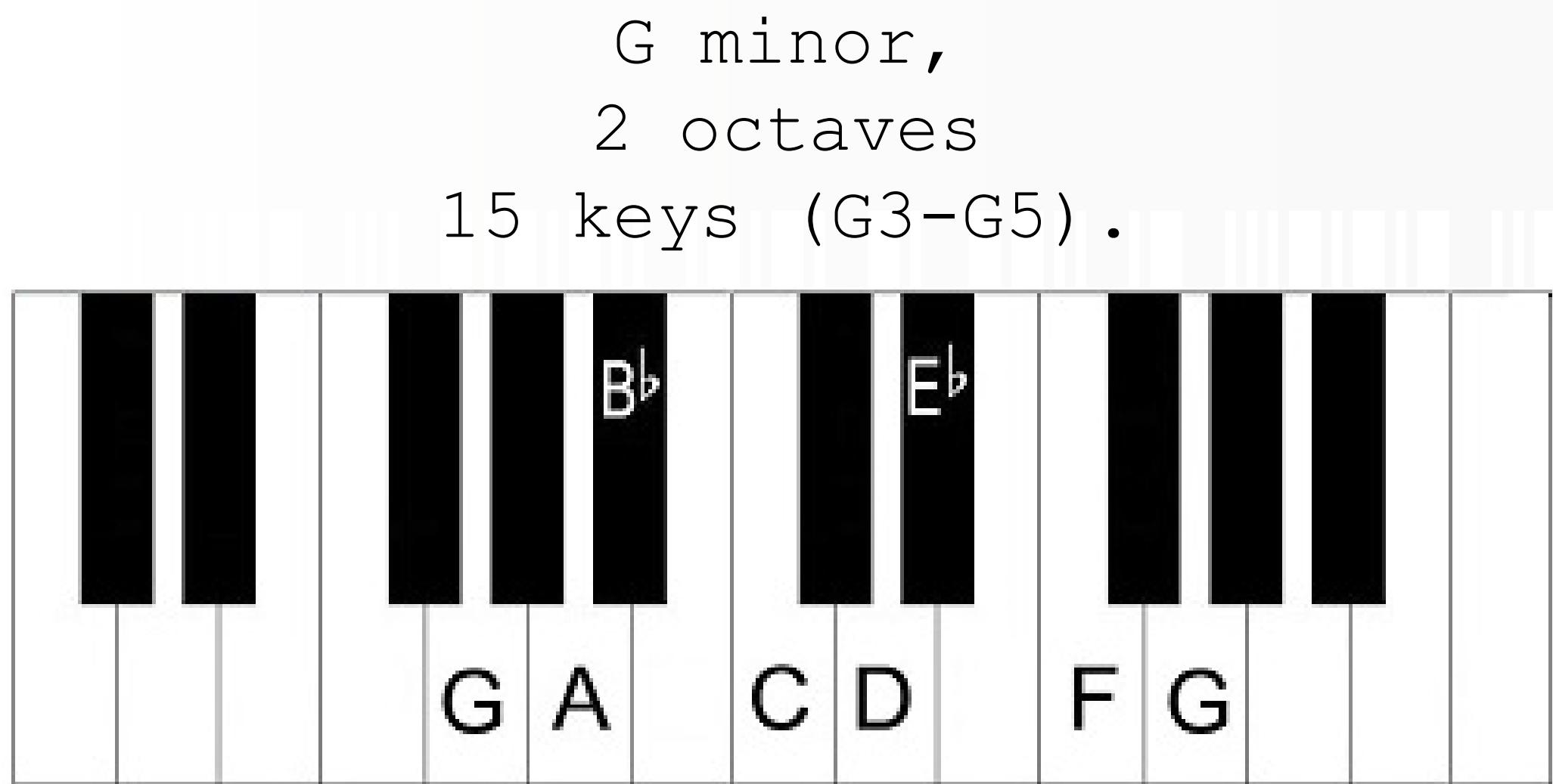
An open-source software library for Machine Intelligence

GET STARTED



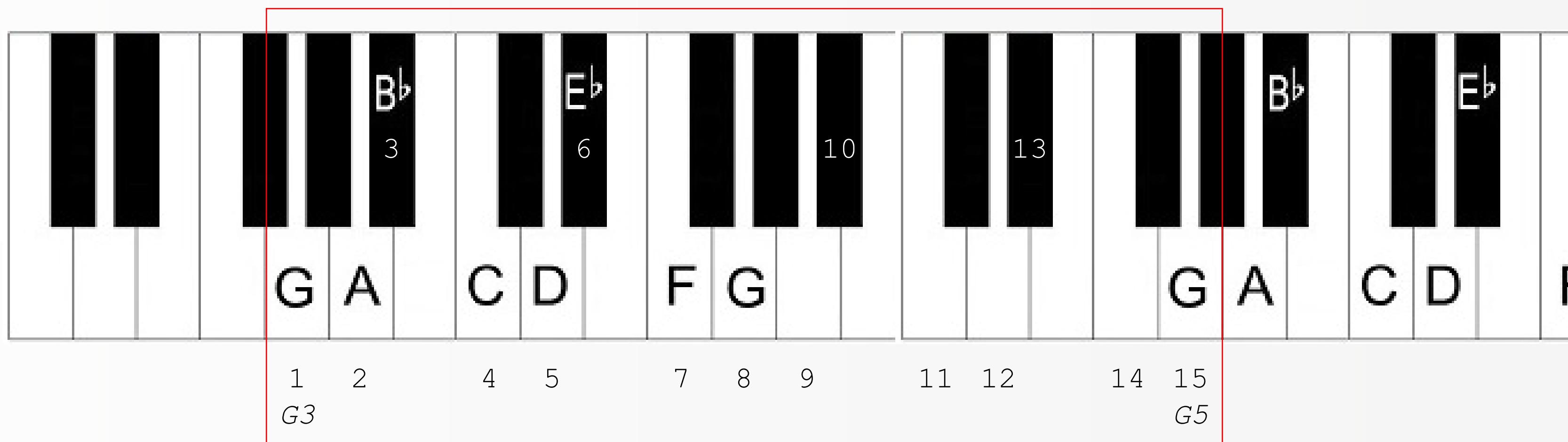
An album of three music pieces, aimed to narrate an abstract musical story the **rise of Artificial Intelligence**: then, now and speculate into the future.

The first composition is generated by me,  
the second composition is generated by me and the neural network,  
the album concludes with a music piece generated solely by the trained neural network.



Process: Step 1:

Numbering the keys to convert music notes and sequence to a numeric data:



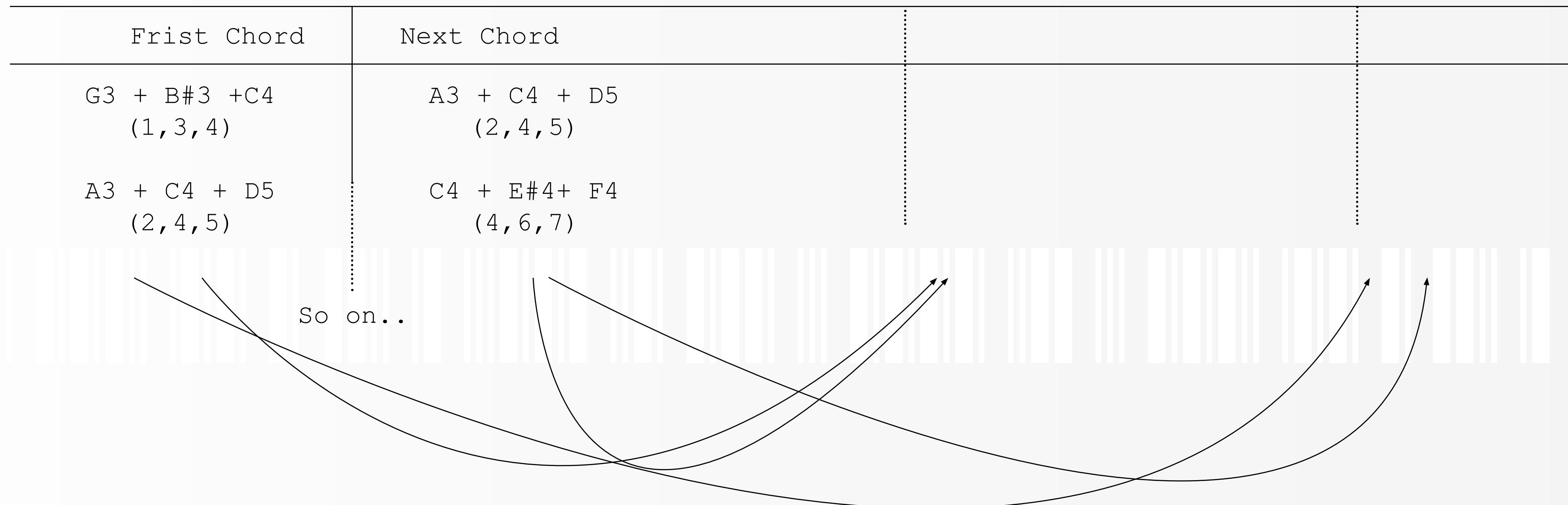
Converting the chord sequence and the melody (note and time sequence) into numerical data.

Chord Sequence:

$$G3 + B\#3 + C4 = 1, 3, 4$$

Melody Note Sequence:

Melody Time Sequence:



Similar sequence for the notes and the time between each note in the melody is generated.

The sequence value between 1-15 is then normalized between 0-1.

The three sequences then achieved is fed into three SRN networks.

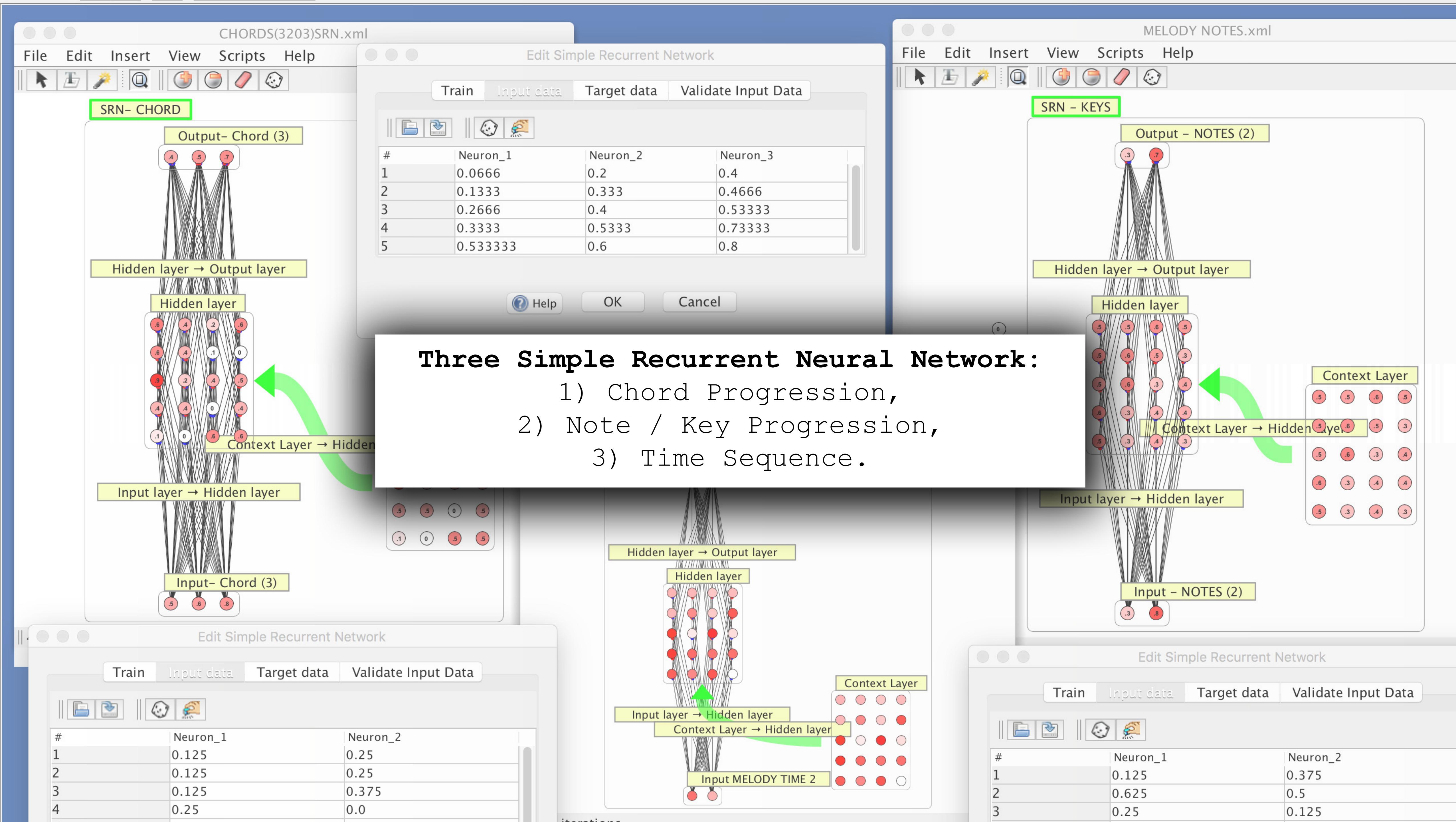
Process: Step 2:

$C(n, r) = n! / (r!(n-r)!)$   
 n = total number of keys = 15  
 r = sample = 3  
 Total = Chords possible = 455

to  
Neural  
Network  
Learn.

played at  
once.

63 - 569  
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The graph below is achieved in Excel by putting the input and getting the output in the trained neural network. This helps us to achieve a equation that can predict the future notes/sequences/melody.

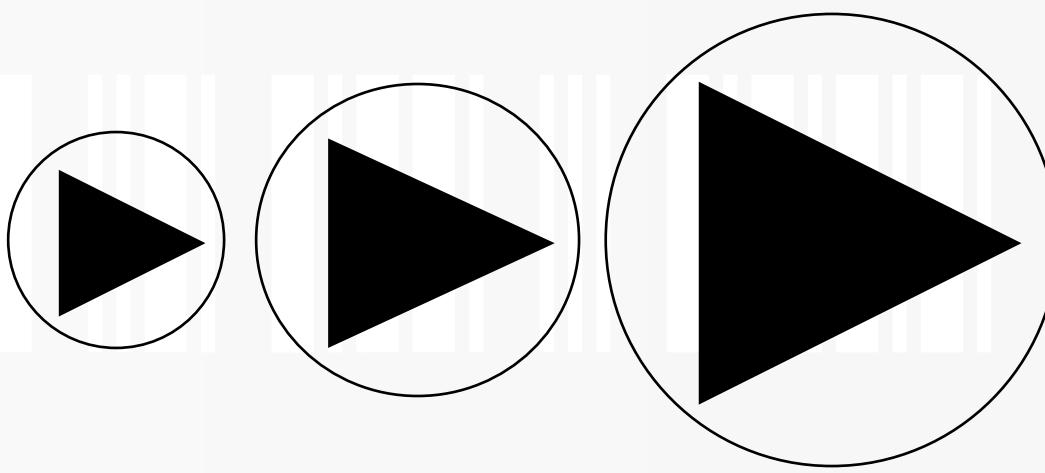


$$y = -0.1376x^2 + 0.9562x - 0.8317$$

$$y = 0.0091x^2 - 0.0556x + 0.4586$$

$$y = -0.1524x^2 + 0.9523x - 0.6705$$

Input Output Data - Excel - Graph - Trendline - Equation:  
 "Once you learn the rule underlying the sequence, you do  
 not need the data anymore"



*Human*

*Human*

*A. I.*

+

*A. I.*

*Play the three compositions files attached separately.*

Thank you.



**Thank you.**