|THE MARKOV CHAIN|
AN AI TIMELINE

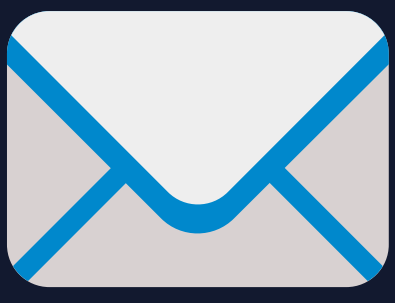
CREATED BY CONNOR GRANT

WHAT IS THE MARKOV CHAIN?

A model of events based on the previous state of a system. Like the weather - if it's rainy today, it's more likely to be rainy tomorrow! In practice, Markov Chains operate as AI, using machine learning to grow and become more accurate with time and data.

1906
Research Begins

Russian mathematician Andrey Markov begins his research into linked probabilities, publishes his first paper on advanced probability theory

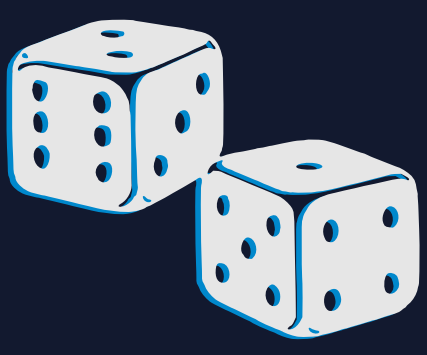


1913
Official Gov. Address

Summarized findings from Andrey Markov are published in an address to the Academy of Sciences in St. Petersburg

1938
International Outreach

French mathematician Maurice Frechet published a study on Markov Chains



1953
Advancements in the Chain

David Kendall, an English mathematician, developed the theory of the embedded Markov Chain, the most widely used technique in various stochastic processes

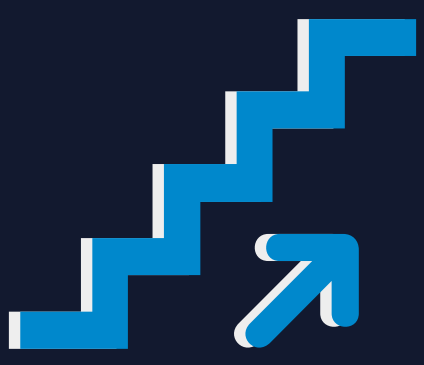
1964
Early Practical Applications

Jacob Mazur used a modified Markov Chain to study thermodynamic processes of certain chemical reactions , both intra- and inter-molecular.

1978

Literary Prowess

Kenny and Snell released their book, Finite Markov Chains, becoming an influential piece of literature of probability theory



1998

PageRank - powered by Markov

Google's founders, Sergey Brin and Larry Page, launched PageRank - a machine learning/AI model that sorts Google's web pages based on changing data

2014

Apple Quick Type - iOS Update

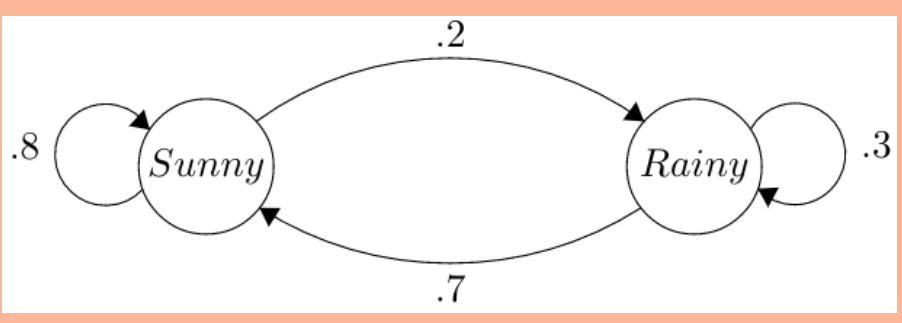
In a big iOS update, Apple released Quick Type, a predictive text algorithm that is powered by the Markov Chain. The more you type, the better it can predict your next word

2020

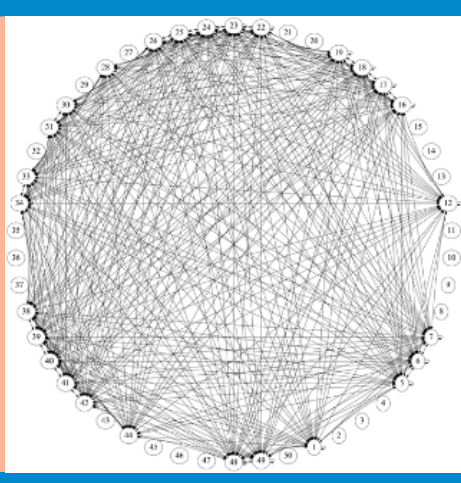
Adrey's Unseen Power

Using modern technology, mathematicians at Gauhati University increased network server efficiency using a Markov-based AI network that will only get better with time

In over 100 years, the Markov Chain has changed quite a bit. However, it's still just like the weather. When it's rainy on a Monday, it's more likely to be rainy on a Tuesday. This relationship is shown below, in a simple model of a Markov Chain. In AI use, these models have thousands of points and multiple layers, looking a little complicated, like the one below.



VS.



SOURCES:

David G. Kendall."Stochastic Processes Occurring in the Theory of Queues and their Analysis by the Method of the Imbedded Markov Chain."Ann. Math. Statist.24(3)338 - 354,September, 1953.https://doi.org/10.1214/aoms/1177728975

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