Collected papers of

Lord Soumadeep Ghosh

Volume 24

The solution to a second order recurrence equation

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe the solution to a second order recurrence equation.
The paper ends with "The End"

Introduction

The second order recurrence equation

$$af[n+1] = bf[n] + cf[n-1]$$

can be solved.
In this paper, I describe the solution to this second order recurrence equation.

The solution to a second order recurrence equation

The solution to this second order recurrence equation is

$$f(n) = c_1 2^{-n} \left(\frac{b}{a} - \frac{\sqrt{b^2+4ac}}{a} \right)^n + c_2 2^{-n} \left(\frac{b}{a} + \frac{\sqrt{b^2+4ac}}{a} \right)^n$$

where
c_1 and c_2 are coefficients to be determined from data

The End

The execution of Narendra Damodardas Modi

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe the execution of Narendra Damodardas Modi.
The paper ends with "The End"

Introduction

In a previous paper, I've described Narendra Damodardas Modi's TREASON.
In this paper, I describe the execution of Narendra Damodardas Modi.

The aftermath of investigations on Narendra Damodardas Modi

The aftermath of investigations on Narendra Damodardas Modi has been telecast and viewed by a number of individuals, both in India and abroad, on popular video-sharing websites on the Internet.
One of the numerous links is posted here for reference:
`https://www.youtube.com/watch?v=8xZHE6kgf6g`

The execution of Narendra Damodardas Modi

Narendra Damodardas Modi was executed by electric chair on the night of 11th January 2023 by his own guards at his residence in New Delhi, India, where he was under house arrest since his TREASON was made public by Indian Member of Parliament Rahul Gandhi.

The End

The power of money

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe the power of money.
The paper ends with "The End"

Introduction

In a previous paper, I've described two simple models of monetary expansion.
In this paper, I describe the power of money.

The power of money

The power $p[m(t)]$ of money $m(t)$ is given by

$$p[m(t)](1 + r_f(t) + p[m(t)]) = m(t)$$

whence

$$p[m(t)] = \frac{1}{2}\left(-\sqrt{(1 + r_f(t))^2 + 4m(t)} - r_f(t) - 1\right)$$

and

$$p[m(t)] = \frac{1}{2}\left(\sqrt{(1 + r_f(t)^2 + 4m(t)} - r_f(t) - 1\right)$$

Notes

1. Note that there exist at least two powers of money.
2. Note that, by recursive substitution, there exist more powers of money.
3. Note that the power(s) of money can be used as checks on the quantity of money.

The End

The peak of money

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe the peak of money.
The paper ends with "The End"

Introduction

In a previous paper, I've described two simple models of monetary expansion.
In this paper, I describe the peak of money.

The peak of money

The peak $P[m(t)]$ of money $m(t)$ is given by

$$(1 + r_f(t) + P[m(t)])(1 + r_f(t) + P[m(t)]) = m(t)$$

whence

$$P[m(t)] = -\sqrt{m(t)} - 1 - r_f(t)$$

and

$$P[(m(t)] = \sqrt{m(t)} - 1 - r_f(t)$$

Notes

1. Note that there exist at least two peaks of money.
2. Note that the peak(s) of money can be used as checks on the quantity of money.

The End

Preferred currencies of the representative agent of economics

Soumadeep Ghosh

Kolkata, India

Abstract
In this paper, I describe my preferred currencies.
The paper ends with "The End"

Introduction

I'm the representative agent of economics.
As of this writing, there are certain currencies I prefer over the remaining currencies.
In this paper, I describe my preferred currencies.

Preferred currencies of the representative agent of economics

The currencies I prefer (in no particular order) are

1. The Swedish Kroner
2. The Norwegian Kroner
3. The Indian Rupee
4. The British Pound
5. The French Franc
6. The Swiss Franc
7. The Austrian Euro
8. The German Reichsmark
9. The Hungarian Pengo
10. The Egyptian Pound
11. The Iranian Riyal
12. The Turkish Lirasi
13. The Saudi Dinar
14. The Canadian Dollar
15. The Washington Dollar of the United States of America
16. The Soviet Ruble
17. The Brazilian Real
18. The Australian Dollar
19. The Ethiopian Birr
20. The South African Rand
21. The Zimbabwean Dollar
22. The Chinese Renminbi
23. The Japanese Yen
24. The North Korean Won
25. The South Korean Won
26. The Indonesian Rupiah
27. The Kina of the Papua New Guinea

The End

Acceptable but not preferred currencies of the representative agent of economics

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe currencies acceptable but not preferred by me.
The paper ends with "The End"

Introduction

I'm the representative agent of economics.
As of this writing, there are certain currencies I prefer over the remaining currencies.
In a previous paper, I've described my preferred currencies.
In this paper, I describe currencies acceptable but not preferred by me.

Acceptable but not preferred currencies of the representative agent of economics

The currencies I still accept but which are not preferred by me (in no particular order) are

1. The Finnish Kroner
2. The Ukrainian Hryvnia
3. The Pakistani Rupee
4. The Sri Lankan Rupee
5. The Polish Zloty
6. The Hong Kong Dollar
7. The Singapore Dollar
8. Any and all currencies whose proportion of daily trading volume in April 2022 was less than 0.5 %

My recommendation to nation-states using those currencies

My recommendation to nation-states using any of the currencies mentioned above is to pivot their financial system to use one of my preferred currencies available geographically nearby as soon as possible.

The End

Ballistics found in the world in increasing order of damage

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe ballistics around the world as of this writing.
The paper ends with "The End"

Introduction

Ballistics has been part of military organization since antiquity.
In this paper, I describe ballistics around the world as of this writing.

Ballistics around the world in increasing order of damage

1. **Dumb missile**

A missile which travels in a straight line towards a stationary target.

This missile is economical to produce during both peace-time and war-time.

2. **Heat-seeking missile**

A missile which travels in the direction of a moving target with a detected heat signature.

This missile is economical to produce during both peace-time and war-time.

3. **RADAR-guided missile**

A missile which travels in the direction of a stationary or a slow-moving target with a detected RADAR signature.

This missile is economical to produce during both peace-time and war-time.

4. **SONAR-guided missile**

A Navy version of the RADAR-guided missile which travels in the direction of a stationary or a slow-moving target with a SONAR signature.

This missile is economical to produce during both peace-time and war-time.

5. **Cruise missile**

An Airforce version of the RADAR-guided missile with improved aerodynamics to intercept an air-borne target during a dogfight.

This missile is economical to produce during both peace-time and war-time.

6. **Anti-Ship Missile (ASM)**

An Airforce version of the SONAR-guided missile with improved aerodynamics to intercept a ship.

This missile is economical to produce during peace-time but not during war-time and is generally produced before long before a war.

7. **Surface-to-Surface Missile (SSM)**

An Army version of the RADAR-guided missile with a near-parabolic path to intercept a land-based target within a medium or large range.

This missile is economical to produce during both peace-time and war-time but is generally strategically produced before a war to equip airplanes.

8. **Surface-to-Air Missile (SAM)**

An Army version of the RADAR-guided missile which has improved aerodynamics to intercept an air-borne target within a medium or large range.

This missile is economical to produce during both peace-time and war-time but is generally strategically produced and placed at SAM sites long before a war.

9. **Inter-Continental Ballistic Missile (ICBM)**

A Surface-to-Surface missile with increased speed, increased power and a large (possibly nuclear) payload which has a near-parabolic path to intercept a land-based target at a very large range.

This missile is expensive to produce during peace-time but economical to produce during war-time.

10. **Hypersonic Re-entry Missile (HRM)**

A Spaceforce version of the Cruise missile with increased speed, increased power and a large payload which has improved aerodynamics to intercept a land-based target at a very large range.

This missile is expensive to produce during peace-time but economical to produce during war-time.

The End

Computer Science 101

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe the first course of Computer Science (also known as CS 101).
The paper ends with "The End"

Introduction

Computer Science is a relatively new field of knowledge as of this writing, but is easy to understand if it's concepts are stated clearly.
In this paper, I describe the first course of Computer Science (also known as CS 101).

Concepts of Computer Science

1. **Theory of Computation**

   This concept defines what can be computed and what cannot be.

   The older the theory of computation the better the Computer Science because older theories of computation try to **predict** new theories of computation while new theories of computation try to **obfuscate** themselves from older theories of computation.

2. **Computer Organization**

   This concept defines the internals of the computer.

   The internals of a computer generally consists of two types of matter. The matter which is present in majority is called **substrate** and the matter which is present in minority is called **enzyme**.

   There exist options of using either chemical or biological or electronic or quantum computer organization with respective substrate and enzyme.

   This field of Computer Science is **forked** into sub-fields like Processor Design, Memory Design, Coolant Design, Computer Parts Manufacturing etc.

3. **Compiler Design**

   This concept defines what commands can be **understood** and/or **run** by the computer.

   While all compilers translate high level commands to computer code, better compilers **encapsulate** compilers that aren't as good. Newer compilers may have new features but aren't necessarily better.

4. **Computer Programming**

   This concept defines what commands are given to the computer to run and **produce** an **output**.

   This field of Computer Science is **forked** into sub-fields like Discrete Mathematics, Coding Theory, Data Structures, Algorithm Design etc.

5. **Computer Networks**

   This concept defines how computers can communicate and co-operate with one another.

   This field of Computer Science is **forked** into sub-fields like Network Architecture, Network Security, Network Protocols, Distributed Computing, Fault Tolerance etc.

6. **Computer Storage**

   This concept defines how computers can store large amounts of data at low costs.

   This field of Computer Science is **forked** into sub-fields like Data Redundancy, Data Compression etc.

7. **Computer Peripherals**

   This concept defines how computers can communicate with input and output devices.

   This field of Computer Science is **forked** into sub-fields like Monitor Design, Keyboard Design, Mouse Design, Scanner Design, Copier Design, Printer Design, Device Driver Programming, Computer Peripherals Manufacturing etc.

The End

Computer Science 201

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe the second course of Computer Science (also known as CS 201).
The paper ends with "The End"

Introduction

In a previous paper, I've described the first course of Computer Science (also known as CS 101).
In this paper, I describe the second course of Computer Science
(also known as Advanced Computer Science or CS 201).

Concepts of Advanced Computer Science

1. **Theory of Advanced Computation**

This concept defines how a computer network can **learn from** and/or **hack** another computer network.

The newer the theory of advanced computation the better the Computer Science because newer theories of advanced computation try to learn from and/or hack older theories of computation.

2. **Malicious Coding**

This concept defines how a computer program can run with a malicious intent on a computer.

3. **Operating System**

This concept defines how a computer can **detect** and **prevent** malicious code by **limiting the access** of malicious code to systemic features.

4. **Penetration Testing**

This concept defines how a computer network or a network protocol can be **hacked** or **misused**.

5. **Online Anti-virus**

This concept defines how a computer program can update virus definitions through a computer network to provide dynamic security to a computer or a computer network against viruses.

6. **Cryptography**

This concept defines how information can be encrypted at a source for safe transmission and decrypted at a destination.

7. **Machine Learning**

This concept defines how to make a computer or a computer network learn from data without being specifically programmed to do so.

The End

Computer Science 301

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe the third course of Computer Science (also known as CS 301).
The paper ends with "The End"

Introduction

In previous papers, I've described the first and second courses of Computer Science (also known as CS 101 and CS 201).
In this paper, I describe the third course of Computer Science
(also known as Modern Computer Science or CS 301).

Concepts of Modern Computer Science

1. **Theory of Modern Computation**

This concept defines how a computer network has **topology**, which is either **static** or **dynamic**.

Various theories of modern computation exist (with respective topologies) which are **trained**, **tested**, **cross-validated** and **selected** for specific computational problems based on **hyper-parameters** and **metrics**.

2. **Artificial Neural Network (ANN))**

An ANN is based on a collection of connected **artificial neurons**, which loosely model the neurons in a biological brain.

ANNs learn to perform tasks by considering examples, generally without being programmed with task-specific rules.

3. **Convolutional Neural Network (CNN))**

A CNN is a specialized artificial neural network that uses **convolution** in place of **matrix multiplication** in at least one of it's layers.

CNNs are specifically designed to process pixel data and find use in image and video recognition, recommender systems, image classification, image segmentation, medical image analysis, natural language processing, brain–computer interfaces and financial time series.

4. **Generative Adversarial Network (GAN)**

In a GAN, two neural networks **contest** with each other in a **zero-sum game**, which loosely models mimicry.

GANs learn to generate new data with the same statistics as the training set.

5. **Deep Learning**

Deep Learning is a class of machine learning algorithms that uses **multiple layers of artificial neurons** to progressively extract **higher-level features** from raw input.

Deep Learning permits practical application and optimized implementation, while retaining theoretical universality under mild conditions.

6. **Big Data Technology**

Big Data Technology refers to **systems** and **software** which process datasets that are too large or complex to be handled by traditional data-processing technologies.

Big Data Technology includes the MapReduce algorithm, the Hadoop ecosystem and software like R, Hive, Pig etc.

The End

Computer Science 401

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe the fourth course of Computer Science (also known as CS 401).
The paper ends with "The End"

Introduction

In previous papers, I've described the first, second and third courses of Computer Science (also known as CS 101, CS 201 and CS 301).
In this paper, I describe the fourth course of Computer Science (also known as Next-Generation Computer Science or CS 401).

Concepts of Next-Generation Computer Science

1. **Theory of Next-Generation Computer Science**

This concept defines how a computer and/or computer network has **throughput**, which is either **high** or **medium** or **low** or **none**.

Various theories of next-generation computer science exist (with respective throughputs) which are either **stand-alone**, **un-linked**, **referenced** or **connected**.

2. **Weak Reference**

This concept defines how a computer can be disconnected from a computer network with Plausible Deniability.

3. **Planetary Connectivity**

Planetary connectivity refers to a planet being interconnected with weak references.

4. **Satellite Connectivity**

Satellite connectivity refers to a redundant connectivity via a satellite of the planet.

5. **Solar System Connectivity**

Solar system connectivity refers to the planets of a solar system being interconnected with weak references.

6. **Symbolic Computing**

Symbolic computing is computing applied to the fields of Logic, Mathematics, Economics etc.

7. **Scientific Computing**

Scientific computing is computing applied to scientific fields like Mathematics, Physics, Chemistry, Biology, Linguistics, Geopolitics etc.

8. **Computational Inference**

Computational inference is computing applied to the field of Statistical Inference.

The End

Computer Science 501

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe the fifth course of Computer Science (also known as CS 501).
The paper ends with "The End"

Introduction

In previous papers, I've described the first, second, third and fourth courses of Computer Science (also known as CS 101, CS 201, CS 301 and CS 401).
In this paper, I describe the fifth course of Computer Science (also known as Contemporary Computer Science or CS 501).

Concepts of Contemporary Computer Science

1. **Theory of Contemporary Computer Science**

This concept defines how a computer or computer network can be **trust-less** but still function by **proof of work**.

Various theories of contemporary computer science exist (with respective proofs of work) which **compete** with one another for market share.

2. **Block-chain**

This concept is a contemporary standard of accounting that defines a **distributed** ledger with growing lists of records (blocks) that are securely linked together via cryptographic hashes (chains).

3. **Smart Contract**

This concept is a contemporary standard of contract that defines an electronic contract based on the block-chain.

4. **Digital Currency**

This concept is a contemporary standard of currency that defines an electronic currency based on smart contracts by public and/or private parties.

5. **Central Bank Digital Currency**

This concept is a contemporary standard of central bank-issued currency that defines an electronic currency backed by the credit and hedged by the smart contracts entered into by the central bank.

The End

Computer malware found around the world in increasing order of damage

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe computer malware found around the world in increasing order of damage. The paper ends with "The End"

Introduction

Computer malware has existed since the advent of Computer Science and computers.
In this paper, I describe computer malware found around the world in increasing order of damage.

Computer malware found around the world in increasing order of damage

1. Network Packet Sniffer
2. Network Mapper
3. Ransomware
4. Worm
5. Spyware
6. Virus
7. Logic Bomb
8. Ethical Hacking
9. State-Sponsored Ethical Hacking
10. Cyber War Software

The End

My proposal for the Indian Jubilee

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe my proposal for the Indian Jubilee. The paper ends with "The End"

Introduction

The Jubilee is a feature of all respectable nations and religions.
In this paper, I describe my proposal for the Indian Jubilee.

My proposal for the Indian Jubilee

My proposal for the Indian Jubilee is to let Indian land lie fallow for 1 year and free the slaves.

The End