

2Specific topic: Analog computers: What is the history behind them? Why use them? How do they work? What are some applications for today and the future? How can they help in tackling climate change?

2Research: Artificial Spin Ice: Jensen + Tufte: Reservoir Computing

Analog Computers in general: Veritasium guy: Analog computers video

2Target audience: **People with general curiosity about the world.

**Students studying electronic engineering or computer science

**People who work in related fields of study or industry

**A few friends and family

2Outline: Using analog computers as a topic for your book is an interesting and unique idea! Analog computers have a rich history and can be a valuable tool for solving complex engineering and mathematical problems. Additionally, they can be related to climate change research and solutions in various ways. Here's a potential approach to exploring this topic: f **Title: "Analog Computers: Past, Present, and Their Role in Addressing Climate Change"

Introduction: - Provide an overview of analog computers, their historical significance, and how they were used in early engineering and scientific endeavors. - Explain their transition to digital computers and the development of modern computational techniques. - Introduce the relevance of analog computers in the context of climate change challenges and solutions.

Chapter 1: An Analog Renaissance - Delve into the history of analog computers, their emergence, and their prominent use in various fields, including engineering, mathematics, and scientific research. - Discuss the advantages and limitations of analog computers compared to digital computers.

Chapter 2: Analog Computing Principles - Explain the fundamental principles and components of analog computers, such as operational amplifiers, integrators, and function generators. - Showcase classic analog computing examples, including differential equations solving, signal processing, and optimization.

Chapter 3: Analog Computers in Climate Modeling - Explore how analog computers have been historically utilized in climate modeling and weather prediction. - Discuss the potential benefits of analog models for understanding complex climate systems and their limitations in comparison to modern digital models.

Chapter 4: Analog Solutions for Climate Challenges - Investigate how analog computing can be used to tackle specific climate change-related problems, such as optimizing renewable energy systems, simulating ecological dynamics, or modeling carbon capture processes. - Highlight case studies of successful analog-based climate solutions.

Chapter 5: Modern Applications of Analog Computers - Showcase contemporary applications of analog computing in engineering and scientific research, including bio-inspired computing, neural networks, and hybrid analog-digital systems. - Discuss how these applications might be relevant to climate change research.

Chapter 6: Analog and Digital Synergy - Explore the potential of combining analog and digital computing techniques to address climate change chal-

lenges effectively. - Discuss the advantages of hybrid systems and how they can complement each other in various scenarios.

****Chapter 7: Future Prospects and Challenges**** - Look into the future of analog computing, its potential resurgence, and its place in an increasingly digital world. - Address the challenges in promoting analog computing and integrating it into modern climate change research.

****Conclusion:**** - Summarize the relevance of analog computers in the context of climate change. - Emphasize the potential for analog computing to contribute to sustainable engineering solutions and inspire readers to explore this unique area of study.

2How am I going to write good and engaging content?: Conduct thorough research supporting the writing Consider including interviews with experts who have experience working with analog computers or relevant analog-digital hybrid systems. Captivating and insightful book that combines history, engineering, mathematics, and climate change solutions

2Expert input from people: Peter Magerøy Håvar Hagelund Åsmund Runningen Erik Folven Lars Lundheim