

## Neural Algorithm for Solving Differential Equations

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Finite difference equations are considered to solve differential equations numerically by utilizing minimization algorithms. Neural minimization algorithms for solving the finite difference equations are presented. Results of numerical simulation are described to demonstrate the method. Methods of implementing the algorithms are discussed. General features of the neural algorithms are discussed. © 1990 Academic Press, Inc.

### I. INTRODUCTION

Numerical computation in many disciplines, such as physics, applied mathematics, electrical engineering, biochemistry, etc., has received a great deal of attention recently as a practical technique to understand complex phenomena that are almost impossible to treat analytically [1]. Supercomputers have been built to speed up the calculation. Furthermore, new computing algorithms based on the concept of concurrent processing have been developed and implemented by connecting a small number of processors.

Recently, highly parallel neural networks have been investigated extensively to solve complicated problems such as pattern recognition and combinatorial optimization [2]. Linear simultaneous equations also have been treated by applying neural networks [3]. Implementation of neural networks by utilizing volume holographic optical interconnections have proved to be promising [4].

One of the most general methods of solving differential equations is to use finite difference equations and to solve the algebraic equations [5]. The computational load for solving the difference equations increases very fast as the number of discrete points becomes large. Therefore, a highly parallel algorithm to solve the finite difference equations is essential when a complicated problem is encountered. In this paper, neural algorithms for minimization are utilized to develop highly parallel

# Neural Algorithm For Solving Differential Equations

**S Marginson**



## **Neural Algorithm For Solving Differential Equations:**

Neural Algorithm For Solving Differential Equations: Bestsellers in 2023 The year 2023 has witnessed a noteworthy surge in literary brilliance, with numerous compelling novels enthralling the hearts of readers worldwide. Lets delve into the realm of top-selling books, exploring the fascinating narratives that have enthralled audiences this year. The Must-Read : Colleen Hoover "It Ends with Us" This touching tale of love, loss, and resilience has captivated readers with its raw and emotional exploration of domestic abuse. Hoover skillfully weaves a story of hope and healing, reminding us that even in the darkest of times, the human spirit can prevail. Neural Algorithm For Solving Differential Equations : Taylor Jenkins Reids "The Seven Husbands of Evelyn Hugo" This captivating historical fiction novel unravels the life of Evelyn Hugo, a Hollywood icon who defies expectations and societal norms to pursue her dreams. Reids compelling storytelling and compelling characters transport readers to a bygone era, immersing them in a world of glamour, ambition, and self-discovery. Discover the Magic : Delia Owens "Where the Crawdads Sing" This mesmerizing coming-of-age story follows Kya Clark, a young woman who grows up alone in the marshes of North Carolina. Owens spins a tale of resilience, survival, and the transformative power of nature, captivating readers with its evocative prose and mesmerizing setting. These top-selling novels represent just a fraction of the literary treasures that have emerged in 2023. Whether you seek tales of romance, adventure, or personal growth, the world of literature offers an abundance of compelling stories waiting to be discovered. The novel begins with Richard Pape, a bright but troubled young man, arriving at Hampden College. Richard is immediately drawn to the group of students who call themselves the Classics Club. The club is led by Henry Winter, a brilliant and charismatic young man. Henry is obsessed with Greek mythology and philosophy, and he quickly draws Richard into his world. The other members of the Classics Club are equally as fascinating. Bunny Corcoran is a wealthy and spoiled young man who is always looking for a good time. Charles Tavis is a quiet and reserved young man who is deeply in love with Henry. Camilla Macaulay is a beautiful and intelligent young woman who is drawn to the power and danger of the Classics Club. The students are all deeply in love with Morrow, and they are willing to do anything to please him. Morrow is a complex and mysterious figure, and he seems to be manipulating the students for his own purposes. As the students become more involved with Morrow, they begin to commit increasingly dangerous acts. The Secret History is an exceptional and thrilling novel that will keep you guessing until the very end. The novel is a warning tale about the dangers of obsession and the power of evil.

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