Turings Connectionism: An Investigation of Neural Network Architectures (Discrete Mathematics and Theoretical Computer Science)

Von Christof Teuscher
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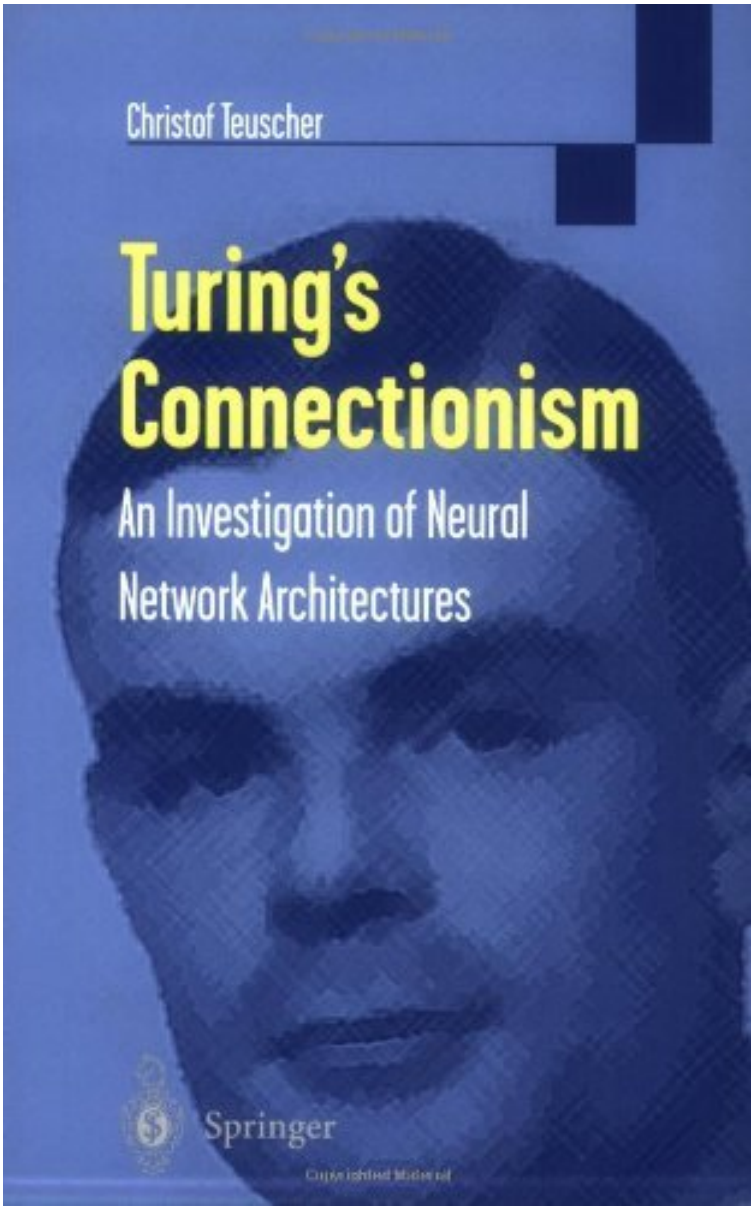

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before purchasing it in order to gage whether or not it would be worth my time, and all praised Turings Connectionism: An Investigation of Neural Network Architectures (Discrete Mathematics and Theoretical Computer Science):

KundenrezensionenHilfreichste Kundenrezensionen2 von 2 Kunden fanden die folgende Rezension hilfreich. Turings neural networks and genetical searchVon C. S. WebsterA programmable digital computer, based on Alan Turing's design, ran its first program in 1950 at the National Physical Laboratory, London. Even today, every computer in the world remains computationally equivalent to a Turing Machine. It is little known however, that Turing also investigated neural network architectures as early as 1948, and before the term genetic algorithm was coined, proposed configuring his networks with a "genetical search". In this book Teuscher presents the most extensive exploration of Turing's neural networks available. The book contains over 100 diagrams, detailed examinations of the logical behaviour of Turing's networks, experiments into their emergent properties and extensions of Turing's ideas based on recent findings. An understanding of Turing's networks allows insight into a number of modern research areas such as Kauffman's work on the principles of self-organisation, the boundaries of computability, and even the real neural networks of living things (Turing claimed that his neural networks were probably the simplest possible model of the human cortex). Because the discussion in the book starts with Turing's early networks and progresses through to current research, it can also be read as an accessible overview of the history of the field. In addition, the book makes it clear that there are many interesting research questions still to be answered in this area. As such, this book will be of interest to historians of computer science and modern researchers alike.

KurzbeschreibungChristof Teuscher revives, analyzes, and simulates Turing's ideas, applying them to different types of problems, and building and training Turing's machines using evolutionary algorithms. In a little known paper entitled 'Intelligent Machinery' Turing investigated connectionist networks, but his work was dismissed as a 'schoolboy essay'and it was left unpublished until 1968, 14 years after his death. This is not a book about today's (classical) neural networks, but about the neuron network-like structures proposed by Turing. One of its novel features is that it actually goes beyond Turing's ideas by proposing new machines. The book also contains a Foreward by B. Jack Copeland and D. Proudfoot.KurzbeschreibungChristof Teuscher revives, analyzes, and simulates Turing's ideas, applying them to different types of problems, and building and training Turing's machines using evolutionary algorithms. In a little known paper entitled 'Intelligent Machinery' Turing investigated connectionist networks, but his work was dismissed as a 'schoolboy essay'and it was left unpublished until 1968, 14 years after his death. This is not a book about today's (classical) neural networks, but about the neuron network-like structures proposed by Turing. One of its novel features is that it actually goes beyond Turing's ideas by proposing new machines. The book also contains a Foreward by B. Jack Copeland and D. Proudfoot.Synopsis Turing's connectionism provides a detailed and in-depth analysis of Turing's almost forgotten ideas on connectionist machines. In a little known paper entitled "Intelligent Machinery", Turing already investigated connectionist models as early as 1948. Unfortunately, his work was dismissed by his employer as a "schoolboy essay" and went unpublished until 1968, 14 years after his death.In this book, Christof Teuscher analyzes all aspects of Turing's "unorganized machines". Turing himself also proposed a sort of genetic algorithm to train the networks. This idea has been resumed by the author and genetic algorithms are used to build and train Turing's unorganized machines. Teuscher's work starts from Turing's initial ideas, but importantly goes beyond them. Many new kinds of machines and new aspects are considered, e.g., hardware implementation, analysis of the complex dynamics of the networks, hypercomputation, and learning algorithms.