Neural Network Design Hagan Solution Manual

The inverse design approach is new to the built environment research and design community, though it has been used in other industries including automobile and airplane design. This book, from some of the pioneers of inverse design applications in the built environment, introduces the basic principles of inverse design and the specific techniques that can be applied to built environment systems. The authors’ inverse design concept uses the desired enclosed environment as the design objective and inversely determines the systems required to achieve the objective. The book discusses a number of backward and forward methods for inverse design. Backward methods, such as the quasi-reversibility method, the pseudo-reversibility method, and the regularized inverse matrix method, can be used to identify contaminant sources in an enclosed environment. However, these methods cannot be used to inversely design a desired indoor environment. Forward methods, such as the computational-fluid-dynamics (CFD)-based genetic algorithm (GA) method, the CFD-based adjoint method, the CFD-based artificial neural network (ANN) method, and the CFD-based proper orthogonal decomposition (POD) method, show the promise in the inverse design of airflow and heat transfer in an enclosed environment. The book describes the fundamentals of the methods for beginners, provides exciting design examples for the reader to duplicate, discusses the pros and cons of each design method and points out the knowledge gaps for further development.

This book is an authoritative collection of contributions in the field of soft-computing. Based on selected works presented at the 6th World Conference on Soft Computing, held on May 22-25, 2016, in Berkeley, USA, it describes new theoretical advances, as well as cutting-edge methods and applications. Theories cover a wealth of topics, such as fuzzy logic, cognitive modeling, Bayesian and probabilistic methods, multi-criteria decision making, utility theory, approximate reasoning, human-centric computing and many others. Applications concern a number of fields, such as internet and semantic web, social networks and trust, control and robotics, computer vision, medicine and bioinformatics, as well as finance, security and e-Commerce, among others. Dedicated to the 50th Anniversary of Fuzzy Logic and to the 95th Birthday Anniversary of Lotfi A. Zadeh, the book not only offers a timely view on the field, yet it also discusses thought-provoking developments and challenges, thus fostering new research directions in the diverse areas of soft computing.

Due to the increasing need to solve complex problems, high-performance computing (HPC) is now one of the most fundamental infrastructures for scientific development in all disciplines, and it has progressed massively in recent years as a result. HPC facilitates the processing of big data, but the tremendous research challenges faced in recent years include: the scalability of computing performance for high velocity, high variety and high volume big data; deep learning with massive-scale datasets; big data programming paradigms on multi-core; GPU and hybrid distributed environments; and unstructured data processing with high-performance computing. This book presents 19 selected papers from the TopHPC2017 congress on Advances in High-Performance Computing and Big Data Analytics in the Exascale era, held in Tehran, Iran, in April 2017. The book is divided into 3 sections: State of the Art and Future Scenarios, Big Data Challenges, and HPC Challenges, and will be of interest to all those whose work involves the processing of Big Data and the use of HPC.

This volume is a brief, yet comprehensive account of new development, tools, techniques and solutions in the broadly perceived “intelligent systems”. New concepts and ideas concern the development of effective and efficient models which would make it possible to effectively and efficiently describe and solve processes in various areas of science and technology. Special emphasis is placed on the dealing with uncertainty and imprecision that permeates virtually all real world processes and phenomena, and has to properly be modeled by formal and algorithmic tools and techniques so that they be adequate and useful. The papers in this volume concern a wide array of possible techniques exemplified by, on the one hand, logic, probabilistic, fuzzy, intuitionistic fuzzy, neuro-fuzzy, etc. approaches. On the other hand, they represent the use of such systems modeling tools as generalized nets, optimization and control models, systems analytic models, etc. They concern a variety of approaches, from pattern recognition, image analysis, education system modeling, biological and medical systems modeling, etc. With existence uses ranging from motion detection to music synthesis to financial forecasting, recurrent neural networks have generated widespread attention. The tremendous interest in these networks drives Recurrent Neural Networks: Design and Applications, a summary of the design, applications, current research, and challenges of this subfield of artificial neural networks. This overview incorporates every aspect of recurrent neural networks. It outlines the wide variety of complex learning techniques and associated research projects. Each chapter addresses architectures, from fully connected to partially connected, including recurrent multilayer feedforward. It presents problems involving trajectories, control systems, and robotics, as well as RNN use in chaotic systems. The book provides a wealth of topics, such as fuzzy logic, cognitive modeling, Bayesian and probabilistic methods, multi-criteria decision making, utility theory, approximate reasoning, human-centric computing and many others. Applications concern a number of fields, such as internet and semantic web, social networks and trust, control and robotics, computer vision, medicine and bioinformatics, as well as finance, security and e-Commerce, among others. Dedicated to the 50th Anniversary of Fuzzy Logic and to the 95th Birthday Anniversary of Lotfi A. Zadeh, the book not only offers a timely view on the field, yet it also discusses thought-provoking developments and challenges, thus fostering new research directions in the diverse areas of soft computing.
applications. This book is a collection of research on the areas of meta-heuristics optimization algorithms in engineering, business, economics, and finance and aims to be a comprehensive reference for decision makers, managers, engineers, researchers, scientists, financiers, and economists as well as industrialists. Mechatronic design processes have become shorter and more parallelized, induced by growing time-to-market pressure. Methods that enable quantitative analysis in early design stages are required, should dependability analyses aim to influence the design. Due to the limited amount of data in this phase, the level of uncertainty is high and explicit modeling of these uncertainties becomes necessary. This work introduces new uncertainty-preserving dependability methods for early design stages. These include the propagation of uncertainty through dependability models, the activation of data from similar components for analyses and the integration of uncertain dependability predictions into an optimization framework. It is shown that Dempster-Shafer theory can be an alternative to probability theory early design stage dependability predictions. Expert estimates can be represented, input uncertainty is propagated through the system and prediction uncertainty can be measured and interpreted. The resulting coherent methodology can be applied to represent the uncertainty in dependability models.

Neural Network Design (2nd Edition)

Neural Network Design

Sensitivity Analysis for Neural Networks
Deterministic Artificial Intelligence
Concepts, Methodologies, Tools, and Applications
Neural Network Design (2nd Edition)
Recurrent Neural Networks
Proceedings of the 28th International Conference on Robotics in Alpe-Adria-Danube Region (RAAD 2019)
Intelligent Engineering Systems Through Artificial Neural Networks
Coastal Hydrodynamics and Morphodynamics
Meta-Heuristics Optimization Algorithms in Engineering, Business, Economics, and Finance
Selected Papers from the 6th World Conference on Soft Computing, May 22-25, 2016, Berkeley, USA
Advancing Technologies
Big Data and HPC: Ecosystem and Convergence

For graduate-level neural network courses offered in the departments of Computer Engineering, Electrical Engineering, and Computer Science. Neural Networks and Learning Machines, Third Edition is renowned for its thoroughness and readability. This well-organized and completely up-to-date text examines the most comprehensive treatment of neural networks from an engineering perspective. This is ideal for professional engineers and research scientists. Matlab codes used for the computer experiments in the text are available for download at: http://www.pearsonhighered.com/baykit Refocused, revised and renamed to reflect the duality of neural networks and learning machines, this edition recognizes that the subject matter is richer when these topics are studied together. Ideas drawn from neural networks and machine learning are hybridized to perform improved learning tasks beyond the capability of either independently.

Artificial neural networks are used to model systems that receive inputs and produce outputs. The relationships between the inputs and outputs and the representation parameters are critical issues in the design of related engineering systems, and sensitivity analysis concerns methods for analyzing these relationships. Perturbations of neural networks are caused by machine imprecision, and they can be simulated by embedding disturbances in the original inputs or connection weights, allowing us to study the characteristics of a function under small perturbations of its parameters. This is the first book to present a systematic description of sensitivity analysis methods for artificial neural networks. It covers sensitivity analysis of multilayer perceptron neural networks and radial basis function neural networks, two widely used models in the machine learning field. The authors examine the applications of such analysis in tasks such as feature selection, sample reduction, and network optimization. The book will be useful for engineers applying neural network sensitivity analysis to solve practical problems, and for researchers interested in foundational problems in neural networks.

IJCNN is the flagship conference of the INNS, as well as the IEEE Neural Networks Society. It has arguably been the preeminent conference in the field, even as neural network conferences have proliferated and specialized. As the number of conferences has grown, its strongest competition has migrated away from an emphasis on neural networks. IJCNN has embraced the proliferation of spin-off and related fields (see the topic list, below), while maintaining a core emphasis befitting its name. It has also succeeded in enforcing an emphasis on quality.

The Scandinavian Conference on Artificial Intelligence continues a tradition of being one of the most important regional AI conferences in Europe for ten years now. The topics of this year's contributions have a broad range, from machine learning, knowledge representation, robotics, planning and scheduling, natural language, computer vision, search algorithms, industrial applications, to philosophical foundations. These contributions exemplify the diversity of research in artificial intelligence today and confirm the achievement and magnitude of 25 years AI research in Scandinavia. In this tenth edition there will be an overview of the past, present and future of artificial intelligence. Furthermore, attention will be paid to the industrial aspects of artificial intelligence and the impressions from Swedish AI through the years. Other topics discussed are biosurveillance and an elaboration on probabilistic modelling and learning in a relational world.

This book provides a broad yet detailed introduction to neural networks and machine learning in a statistical framework. A single, comprehensive resource for study and further research, it explores the major popular neural network models and statistical learning approaches with examples and exercises and allows readers to gain a practical working understanding of the content. This updated new edition presents recently published results and includes six new chapters that correspond to the recent advances in computational learning theory, sparse coding, deep learning, big data and cloud computing. Each chapter features state-of-the-art descriptions and significant research findings. The topics covered include: • multilayer perceptron; • the Hopfield network; • associative memory models; • clustering models and algorithms; • the radial basis function network; • recurrent neural networks; • nonnegative matrix factorization; • independent component analysis; • probabilistic and Bayesian networks; and • fuzzy sets and logic. Focusing on the prominent accomplishments and their practical aspects, this book provides academic and technical staff, as well as graduate students and researchers with a solid foundation and comprehensive reference on the fields of neural networks, pattern recognition, signal processing, and machine learning.
In the current scenario in which climate change dominates our lives and in which we all need to combat and drastically reduce the emission of greenhouse gases, renewable energies play key roles as present and future sources. Renewable energies vary across a wide range, and therefore, there are related studies for each type of energy. This Special Issue is composed of studies integrating the latest research innovations and knowledge focused on all types of renewable energy: onshore and offshore wind, photovoltaic, solar, biomass, geothermal, waves, tides, hydro, etc. Authors were invited to submit review and research papers focused on energy resource estimation, all types of TRL converters, civil infrastructure, electrical connection, environmental studies, licensing and development of facilities, construction, operation and maintenance, mechanical and structural analysis, new materials for these facilities, etc. Analyses of a combination of several renewable energies as well as storage systems to progress the development of these sustainable energies were welcomed.

Kirchoff's laws give a mathematical description of electromechanics. Similarly, translational motion mechanics obey Newton's laws, while rotational motion mechanics comply with Euler's moment equations, a set of three nonlinear, coupled differential equations. Nonlinearities complicate the mathematical treatment of the seemingly simple action of rotating, and these complications lead to a robust lineage of research culminating here with a text on the ability to make rigid bodies in rotation become self-aware, and even learn. This book is meant for basic scientifically inclined readers commencing with a first chapter on the basics of stochastic artificial intelligence to bridge readers to very advanced topics of deterministic artificial intelligence, espoused in the book with applications to both electromechanics (e.g. the forced van der Pol equation) and also motion mechanics (i.e. Euler's moment equations). The reader will learn how to bestow self-awareness and express optimal learning methods for the self-aware object (e.g. robot) that require no tuning and no interaction with humans for autonomous operation. The topics learned from reading this text will prepare students and faculty to investigate interesting problems of mechanics. It is the fondest hope of the editor and authors that readers enjoy the book.

Numerical Models for Submerged Breakwaters: Coastal Hydrodynamics and Morphodynamics discusses the practice of submerged breakwaters, an increasingly popular tool used as a coastal defense system because of their amenity and aesthetics as compared to common emerged beach protection measures. The book is the perfect guide for experienced professionals who wish to keep abreast of the latest best practices or those who are entering the field and need a reference, explaining new and traditional numerical methodologies for designing submerged breakwaters and measuring their performance. In addition, the book provides case studies, examples, and practical methods for data selection and pre-processing, model setup, calibration, and analysis. Case studies and worked-out examples illustrate different concepts and methods. Offers practical methods for Data Selection and Pre-Processing. Provides simplified prediction tools for practical applications.

A Comprehensive Foundation
With Machine Learning, Neural Networks and Artificial Intelligence
Neural Network Design
Renewable Energies for Sustainable Development
Research Methods: Concepts, Methodologies, Tools, and Applications
Security, Privacy, and Applied Cryptography Engineering
Recent Trends on Electromagnetic Environmental Effects for Aeronautics and Space Applications
Inverse Design Methods for the Built Environment
22nd HCI International Conference, HCII 2020, Copenhagen, Denmark, July 19–24, 2020, Proceedings
Recent Advances on Hybrid Intelligent Systems
Advances in Neural Networks - ISNN 2009
Proceedings of the Seventh International Conference on Intelligent Systems and Knowledge Engineering, Beijing, China, Dec 2012 (ISKE 2012)

Machine Design is interdisciplinary and draws its matter from different subjects such as Thermodynamics, Fluid Mechanics, Production Engineering, Mathematics etc. to name a few. As such, this book serves as a databook for various subjects of Mechanical Engineering. It also acts as a supplement to our popular book, Design of Machine Elements. It’s a concise, updated data handbook that maps with the syllabi of all major universities and technical boards of India as well as professional examining bodies such as Institute of Engineers. Across a variety of disciplines, data and statistics form the backbone of knowledge. To ensure the reliability and validity of data, appropriate measures must be taken in conducting studies and reporting findings. Research Methods: Concepts, Methodologies, Tools, and Applications compiles chapters on key considerations in the management, development, and distribution of data. With its focus on both fundamental concepts and advanced topics, this multi-volume reference work will be a valuable addition to researchers, scholars, and students of science, mathematics, and engineering.

This book constitutes the refereed proceedings of the 8th International Conference on Security, Privacy, and Applied Cryptography Engineering, SPACE 2018, held in Kanpur, India, in December 2018. The 12 full papers presented together with 5 short papers, were carefully reviewed and selected from 34 submissions. This annual event is devoted to various aspects of security, privacy, applied cryptography, and cryptographic engineering. This is indeed a very challenging field, requiring the expertise from diverse domains, ranging from mathematics to solid-state circuit design.

This book presents two new composition methods to decompose a time series in intrinsic components of low and high frequencies. The methods are based on Singular Value Decomposition (SVD) of a Hankel matrix (HSVD). The proposed decomposition is used to improve the accuracy of linear and nonlinear auto-regressive models. Linear Auto-regressive models (AR, ARMA and ARIMA) and Auto-regressive Neural Networks (ANNs) have been found insufficient because of the highly complicated nature of some time series. Hybrid models are a recent solution to deal with non-stationary processes which combine pre-processing techniques with conventional forecasters, some pre-processing techniques broadly implemented are Singular Spectrum Analysis (SSA) and Stationary Wavelet Transform (SWT). Although the flexibility of SSA and SWT allows their usage in a wide range of forecast problems, there is a lack of standard methods to select their parameters. The proposed decomposition HSVD and Multilevel SVD are described in detail through time series coming from the transport and fishery sectors. Further, for comparison purposes, it is evaluated the forecast accuracy reached by SSA and SWT, both jointly with AR-based models and ANNs.

This research monograph presents a systematic treatment of the theory of the propagation of transient electromagnetic fields (such as optical pulses) through dielectric media which exhibit both dispersion and absorption. The work divides naturally into two parts. Part I presents a summary of the fundamental theory of the radiation and propagation of rather general electromagnetic waves.
in causal, linear media which are homogeneous and isotropic but which otherwise have rather general dispersive and absorbing properties. In Part II, we specialize to the propagation of a plane, transient electromagnetic field in a homogeneous dielectric. Although we have made some contributions to the fundamental theory given in Part I, most of the results of our own research appear in Part II. The purpose of the theory presented in Part II is to predict and to explain in explicit detail the dynamics of the field after it has propagated far enough through the medium to be in the mature-dispersion regime. It is the subject of a classic theory, based on the research conducted by A. Sommerfeld and L.

This book provides a clear and detailed coverage of fundamental neural network architectures and learning rules. In it, the authors emphasize a coherent presentation of the principal neural networks, methods for training them and their applications to practical problems.

This book presents the proceedings of the 28th International Conference on Robotics in Alpe-Adria-Danube Region, RAAD 2019, held at the Fraunhofer Zentrum and the Technische Universität in Kaiserslautern, Germany, on 19–21 June 2019. The conference brought together academic researchers in robotics from 20 countries, mainly affiliated to the Alpe-Adria-Danube Region and covered all major areas of robotic research, development and innovation as well as new applications and current trends. Offering a comprehensive overview of the ongoing research in the field of robotics, the book is a source of information and inspiration for researchers wanting to improve their work and gather new ideas for future developments. It also provides researchers with an innovative and up-to-date perspective on the state of the art in this area.


Managerial Finance
Proceedings of the Artificial Neural Networks in Engineering (ANNIE '93) Conference, Held November 14-17, 1993, in St. Louis, Missouri, U.S.A.
Advances in Neural Networks - ISNN 2007
Elements of Artificial Neural Networks
ICNN 2003
Tenth Scandinavian Conference on Artificial Intelligence
Multiscale Forecasting Models
Spotlight on Modern Transformer Design
Inverse Heat Transfer Problems
Adaptive Dynamic Programming with Applications in Optimal Control
HCII International 2020 – Late Breaking Papers: Universal Access and Inclusive Design
These proceedings present technical papers selected from the 2012 International Conference on Intelligent Systems and Knowledge Engineering (ISKE 2012), held on December 15-17 in Beijing. The aim of this conference is to bring together experts from different fields of expertise to discuss the state-of-the-art in Intelligent Systems and Knowledge Engineering, and to present new findings and perspectives on future developments. The proceedings introduce current scientific and technical advances in the fields of artificial intelligence, machine learning, pattern recognition, data mining, knowledge engineering, information retrieval, information theory, knowledge-based systems, knowledge representation and reasoning, multi-agent systems, and natural-language processing, etc. Furthermore they include papers on new intelligent computing paradigms, which combine new computing methodologies, e.g., cloud computing, service computing and pervasive computing with traditional intelligent methods. By presenting new methodologies and practices, the proceedings will benefit both researchers and practitioners who want to utilize intelligent methods in their specific fields. Dr. Fuchun Sun is a professor at the Department of Computer Science & Technology, Tsinghua University, China. Dr. Tianrui Li is a professor at the School of Information Science & Technology, Southwest Jiaotong University, Chengdu, China. Dr. Hongbo Li also works at the Department of Computer Science & Technology, Tsinghua University, China.

Electromagnetic compatibility and regulatory compliance issues are subjects of great importance in electronics engineering. Avoiding problems regarding an electronic system's operation, while always important, is especially critical in space missions and satellite structures. Many problems can be traced to EM field disturbances as interference from unintended sources and other electromagnetic phenomena. As a result, stringent requirements are to be met in terms of electromagnetic emissions levels. The inclusion of this electromagnetic environment in the design of a multimillion mission can lead to a system that is able to withstand whatever challenge the environment throws at it. Failure to do so may lead to important data corruption or loss, destruction of expensive instruments, waste of resources, and even a total mission failure. Research in this area focuses on the studying of the applications of electromagnetic compatibility and electromagnetic interference in the space industry. Recent Trends on Electromagnetic Environmental Effects for Aeronautics and Space Applications will provide relevant theoretical frameworks and the latest empirical research findings in electromagnetic compatibility.
and electromagnetic interference (EMC/EMI) for the aerospace industry. This book examines all the necessary information for all matters that can possibly affect the system design of a spacecraft and can be a useful reference to space system engineers and more. While highlighting topics such as artificial intelligence, electromagnetic testing, environmental shielding, and EMC modeling techniques, this book is ideal for professionals, spacecraft designers, science and data processing managers, electrical and mechanical engineers, EMC testing engineers, and researchers working in the aerospace industry along with practitioners, researchers, academicians, and students looking for necessary information for all the matters that can possibly affect the system design of a spacecraft.

Elements of Artificial Neural Networks provides a clearly organized general introduction, focusing on a broad range of algorithms, for students and others who want to use neural networks rather than simply study them. The authors, who have been developing and team teaching the material in a one-semester course over the past six years, describe most of the basic neural network models (with several detailed solved examples) and discuss the rationale and advantages of the models, as well as their limitations. The approach is practical and open-minded and requires very little mathematical or technical background. Written from a computer science and statistics point of view, the text stresses links to contiguous fields and can easily serve as a first course for students in economics and management. The opening chapter sets the stage, presenting the basic concepts in a clear and objective way and tackling important -- yet rarely addressed -- questions related to the use of neural networks in practical situations. Subsequent chapters on supervised learning (single layer and multilayer networks), unsupervised learning, and associative models are structured around classes of problems to which networks can be applied. Applications are discussed along with the algorithms. A separate chapter takes up optimization methods. The most frequently used algorithms, such as backpropagation, are introduced early on, right after perceptrons, so that these can form the basis for initiating course projects. Algorithms published as late as 1995 are also included. All of the algorithms are presented using block-structured pseudo-code, and exercises are provided throughout.

Software implementing many commonly used neural network algorithms is available at the book's website. Transparency masters, including abbreviated text and figures for the entire book, are available for instructors using the text.


The three volume set LNCS 5551/5552/5553 constitutes the refereed proceedings of the 6th International Symposium on Neural Networks, ISNN 2009, held in Wuhan, China in May 2009. The 409 revised papers presented were carefully reviewed and selected from a total of 1,235 submissions. The papers are organized in 20 topical sections on theoretical analysis, stability, time-delay neural networks, machine learning, neural modeling, decision making systems, fuzzy systems and fuzzy neural networks, support vector machines and kernel methods, genetic algorithms, clustering and classification, pattern recognition, intelligent control, optimization, robotics, image processing, signal processing, biomedical applications, fault diagnosis, telecommunication, sensor network and transportation systems, as well as applications.

This volume contains the edited versions of the technical presentations of the third international gathering of researchers interested in the applications of artificial neural networks, genetic algorithms, and fuzzy logic. The papers in this volume are grouped into five categories: artificial neural network architectures, pattern recognition, neuro-control, neuro-manufacturing, and neuro-engineering systems. Contents include Theoretical Foundation for CMAC Technique, Embeddable Reconfigurable Neuroprocessors, Heave Compensation Via Neural Networks, Benchmarking Framework for Neuro Algorithms, Handwriting Recognition Using an Art Based Network, Neural Vector Quantization for Image Compression, Training Fuzzy Controller, Genetic Three-Dimensional Packer, and Geophysical Target Identification in Environmental Investigations.

This book covers the most recent developments in adaptive dynamic programming (ADP). The text begins with a thorough background review of ADP making sure that readers are sufficiently familiar with the fundamentals. In the core of the book, the authors address first discrete- and then continuous-time systems. Coverage of discrete-time systems starts with a more general form of value iteration to demonstrate its convergence, optimality, and stability with complete and thorough theoretical analysis. A more realistic form of value iteration is studied where value function approximations are assumed to have finite errors. Adaptive Dynamic Programming also details another avenue of the ADP approach: policy iteration. Both basic and
generalized forms of policy-iteration-based ADP are studied with complete and thorough theoretical analysis in terms of convergence, optimality, stability, and error bounds. Among continuous-time systems, the control of affine and nonaffine nonlinear systems is studied using the ADP approach which is then extended to other branches of control theory including decentralized control, robust and guaranteed cost control, and game theory. In the last part of the book the real-world significance of ADP theory is presented, focusing on three application examples developed from the authors’ work: renewable energy scheduling for smart power grids, coal gasification processes, and water-gas shift reactions. Researchers studying intelligent control methods and practitioners looking to apply them in the chemical-process and power-supply industries will find much to interest them in this thorough treatment of an advanced approach to control.

This book is part of a three volume set that constitutes the refereed proceedings of the 4th International Symposium on Neural Networks, ISNN 2007, held in Nanjing, China in June 2007. Coverage includes neural networks for control applications, robotics, data mining and feature extraction, chaos and synchronization, support vector machines, fault diagnosis/detection, image/video processing, and applications of neural networks.
convolutional neural networks. In a blend of fundamentals and applications, MATLAB Deep Learning employs MATLAB as the underlying programming language and tool for the examples and case studies in this book. With this book, you'll be able to tackle some of today's real world big data, smart bots, and other complex data problems. You'll see how deep learning is a complex and more intelligent aspect of machine learning for modern smart data analysis and usage.

What You'll Learn
- Use MATLAB for deep learning
- Discover neural networks and multi-layer neural networks
- Work with convolution and pooling layers
- Build a MNIST example with these layers

Who This Book Is For
Those who want to learn deep learning using MATLAB. Some MATLAB experience may be useful.

Spotlight on Modern Transformer Design introduces a novel approach to transformer design using artificial intelligence (AI) techniques in combination with finite element method (FEM). Today, AI is widely used for modeling nonlinear and large-scale systems, especially when explicit mathematical models are difficult to obtain or completely lacking. Moreover, AI is computationally efficient in solving hard optimization problems. Many numerical examples throughout the book illustrate the application of the techniques discussed to a variety of real-life transformer design problems, including:
- problems relating to the prediction of no-load losses;
- winding material selection;
- transformer design optimisation;
- and transformer selection.

Spotlight on Modern Transformer Design is a valuable learning tool for advanced undergraduate and graduate students, as well as researchers and power engineering professionals working in electric utilities and industries, public authorities, and design offices.