

1. Record Nr.	UNISA990001384940203316
Autore	REARICK, William R.
Titolo	Il disegno veneziano del cinquecento / William R. Rearick ; [traduzione di Valeria Barboni e Tessie Vecchi]
Pubbl/distr/stampa	Milano, : Electa, 2001
ISBN	88-435-7247-4
Descrizione fisica	264 p. ; 25 cm
Collana	Biblioteca Electa , Saggistica universale illustrata
Disciplina	741.94531
Soggetti	Disegni - Venezia - Sec. 16
Collocazione	XII.2.B. 595(VII G 298)
Lingua di pubblicazione	Italiano
Formato	Materiale a stampa
Livello bibliografico	Monografia

2. Record Nr.	UNINA9910830539803321
Autore	Santry Douglas J.
Titolo	Demystifying Deep Learning : An Introduction to the Mathematics of Neural Networks / / Douglas J. Santry
Pubbl/distr/stampa	Hoboken, New Jersey : , : John Wiley & Sons, Inc., , [2024] ©2024
ISBN	1-394-20563-5 1-394-20561-9
Edizione	[First edition.]
Descrizione fisica	1 online resource (259 pages)
Disciplina	006.310151
Soggetti	Deep learning (Machine learning)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover -- Title Page -- Copyright -- Contents -- About the Author -- Acronyms -- Chapter 1 Introduction -- 1.1 AI/ML - Deep Learning? -- 1.2 A Brief History -- 1.3 The Genesis of Models -- 1.3.1 Rise of the Empirical Functions -- 1.3.2 The Biological Phenomenon and the Analogue -- 1.4 Numerical Computation - Computer Numbers Are Not eal -- 1.4.1 The IEEE 754 Floating Point System -- 1.4.2 Numerical Coding Tip: Think in Floating Point -- 1.5 Summary -- 1.6 Projects -- Chapter 2 Deep Learning and Neural Networks -- 2.1 FeedForward and FullyConnected Artificial Neural Networks -- 2.2 Computing Neuron State -- 2.2.1 Activation Functions -- 2.3 The FeedForward ANN Expressed with Matrices -- 2.3.1 Neural Matrices: A Convenient Notation -- 2.4 Classification -- 2.4.1 Binary Classification -- 2.4.2 OneHot Encoding -- 2.4.3 The Softmax Layer -- 2.5 Summary -- 2.6 Projects -- Chapter 3 Training Neural Networks -- 3.1 Preparing the Training Set: Data Preprocessing -- 3.2 Weight Initialization -- 3.3 Training Outline -- 3.4 Least Squares: A Trivial Example -- 3.5 Backpropagation of Error for Regression -- 3.5.1 The Terminal Layer (Output) -- 3.5.2 Backpropagation: The Shallower Layers -- 3.5.3 The Complete Backpropagation Algorithm -- 3.5.4 A Word on the Rectified Linear Unit (ReLU) -- 3.6 Stochastic Sine -- 3.7 Verification of a Software Implementation -- 3.8 Summary -- 3.9 Projects -- Chapter 4 Training Classifiers -- 4.1 Backpropagation for Classifiers -- 4.1.1

Likelihood -- 4.1.2 Categorical Loss Functions -- 4.2 Computing the Derivative of the Loss -- 4.2.1 Initiate Backpropagation -- 4.3 Multilabel Classification -- 4.3.1 Binary Classification -- 4.3.2 Training A Multilabel Classifier ANN -- 4.4 Summary -- 4.5 Projects -- Chapter 5 Weight Update Strategies -- 5.1 Stochastic Gradient Descent -- 5.2 Weight Updates as Iteration and Convex Optimization. 5.2.1 Newton's Method for Optimization -- 5.3 RPROP+ -- 5.4 Momentum Methods -- 5.4.1 AdaGrad and RMSProp -- 5.4.2 ADAM -- 5.5 Levenberg-Marquard Optimization for Neural Networks -- 5.6 Summary -- 5.7 Projects -- Chapter 6 Convolutional Neural Networks -- 6.1 Motivation -- 6.2 Convolutions and Features -- 6.3 Filters -- 6.4 Pooling -- 6.5 Feature Layers -- 6.6 Training a CNN -- 6.6.1 Flatten and the Gradient -- 6.6.2 Pooling and the Gradient -- 6.6.3 Filters and the Gradient -- 6.7 Applications -- 6.8 Summary -- 6.9 Projects -- Chapter 7 Fixing the Fit -- 7.1 Quality of the Solution -- 7.2 Generalization Error -- 7.2.1 Bias -- 7.2.2 Variance -- 7.2.3 The BiasVariance Tradeoff -- 7.2.4 The BiasVariance Tradeoff in Context -- 7.2.5 The Test Set -- 7.3 Classification Performance -- 7.4 Regularization -- 7.4.1 Forward Pass During Training -- 7.4.2 Forward Pass During Normal Inference -- 7.4.3 Backpropagation of Error -- 7.5 Advanced Normalization -- 7.5.1 Batch Normalization -- 7.5.2 Layer Normalization -- 7.6 Summary -- 7.7 Projects -- Chapter 8 Design Principles for a Deep Learning Training Library -- 8.1 Computer Languages -- 8.2 The Matrix: Crux of a Library Implementation -- 8.2.1 Memory Access and Modern CPU Architectures -- 8.2.2 Designing Matrix Computations -- 8.2.2.1 Convolutions as Matrices -- 8.3 The Framework -- 8.4 Summary -- 8.5 Projects -- Chapter 9 Vistas -- 9.1 The Limits of ANN Learning Capacity -- 9.2 Generative Adversarial Networks -- 9.2.1 GAN Architecture -- 9.2.2 The GAN Loss Function -- 9.3 Reinforcement Learning -- 9.3.1 The Elements of Reinforcement Learning -- 9.3.2 A Trivial RL Training Algorithm -- 9.4 Natural Language Processing Transformed -- 9.4.1 The Challenges of Natural Language -- 9.4.2 Word Embeddings -- 9.4.3 Attention -- 9.4.4 Transformer Blocks -- 9.4.5 MultiHead Attention -- 9.4.6 Transformer Applications. 9.5 Neural Turing Machines -- 9.6 Summary -- 9.7 Projects -- Appendix A Mathematical Review -- A.1 Linear Algebra -- A.1.1 Vectors -- A.1.2 Matrices -- A.1.3 Matrix Properties -- A.1.4 Linear Independence -- A.1.5 The QR Decomposition -- A.1.6 Least Squares -- A.1.7 Eigenvalues and Eigenvectors -- A.1.8 Hadamard Operations -- A.2 Basic Calculus -- A.2.1 The Product Rule -- A.2.2 The Chain Rule -- A.2.3 Multivariable Functions -- A.2.4 Taylor Series -- A.3 Advanced Matrices -- A.4 Probability -- Glossary -- References -- Index -- EULA.

Sommario/riassunto

"Artificial Neural Networks (ANN) are incredibly successful subfield of artificial intelligence (AI). ANNs are everywhere and their introduction to the world is accelerating as new applications for ANNs are launched. No profession is exempt: medicine, law, financial services and science. The robot revolution threatened blue collar jobs in the 1970s. The AI revolution threatens white collar jobs. ANNs are successfully helping medical doctors detect and predict disease. Language comprehension ANNs based on transformers are reading legal contracts and making recommendations. Scientists use ANNs to understand experimental data, model protein folding and hurricane modeling - and it is just beginning. AI is on the agenda, in the news (for good reasons - and bad), discussed by think tanks and government policy makers. The AI they are usually discussing is based on ANNs. ANN techniques are specializing as they adapt to natural language process, image

recognition, problem solving and generative applications, but they still share certain canonical properties."--
