

DEEP LEARNING FOR COMPUTER VISION WITH PYTHON

MASTER DEEP

YEAH, REVIEWING A EBOOK **DEEP LEARNING FOR COMPUTER VISION WITH PYTHON MASTER DEEP** COULD GROW YOUR CLOSE CONNECTIONS LISTINGS. THIS IS JUST ONE OF THE SOLUTIONS FOR YOU TO BE SUCCESSFUL. AS UNDERSTOOD, COMPLETION DOES NOT SUGGEST THAT YOU HAVE FABULOUS POINTS.

COMPREHENDING AS WITHOUT DIFFICULTY AS DEAL EVEN MORE THAN OTHER WILL GIVE EACH SUCCESS. NEXT-DOOR TO, THE STATEMENT AS WITH EASE AS PERSPICACITY OF THIS DEEP LEARNING FOR COMPUTER VISION WITH PYTHON MASTER DEEP CAN BE TAKEN AS WITHOUT DIFFICULTY AS PICKED TO ACT.

TENSORFLOW DEEP LEARNING PROJECTS - ALEXEY GRIGOREV 2018-03-28
LEVERAGE THE POWER OF TENSORFLOW TO DESIGN DEEP LEARNING SYSTEMS FOR A VARIETY OF REAL-WORLD SCENARIOS KEY FEATURES BUILD EFFICIENT DEEP LEARNING PIPELINES USING THE POPULAR TENSORFLOW FRAMEWORK TRAIN NEURAL NETWORKS SUCH AS CONVNETS, GENERATIVE MODELS, AND LSTMS INCLUDES PROJECTS RELATED TO COMPUTER VISION, STOCK PREDICTION, CHATBOTS AND MORE BOOK DESCRIPTION TENSORFLOW IS ONE OF THE MOST POPULAR FRAMEWORKS USED FOR MACHINE LEARNING AND, MORE RECENTLY, DEEP LEARNING. IT PROVIDES A FAST AND EFFICIENT FRAMEWORK FOR TRAINING DIFFERENT KINDS OF DEEP LEARNING MODELS, WITH VERY HIGH ACCURACY. THIS BOOK IS YOUR GUIDE TO MASTER DEEP LEARNING WITH TENSORFLOW WITH THE HELP OF 10 REAL-WORLD PROJECTS. TENSORFLOW DEEP LEARNING PROJECTS STARTS WITH SETTING UP THE RIGHT TENSORFLOW ENVIRONMENT FOR DEEP LEARNING. LEARN TO TRAIN DIFFERENT TYPES OF DEEP LEARNING MODELS USING TENSORFLOW, INCLUDING CONVOLUTIONAL NEURAL NETWORKS, RECURRENT NEURAL NETWORKS, LSTMS, AND GENERATIVE ADVERSARIAL NETWORKS. WHILE DOING SO, YOU WILL BUILD END-TO-END DEEP LEARNING SOLUTIONS TO TACKLE DIFFERENT REAL-WORLD PROBLEMS IN IMAGE PROCESSING, RECOMMENDATION SYSTEMS, STOCK PREDICTION, AND BUILDING CHATBOTS, TO NAME A FEW. YOU WILL ALSO DEVELOP SYSTEMS THAT PERFORM MACHINE TRANSLATION, AND USE REINFORCEMENT LEARNING TECHNIQUES TO PLAY GAMES. BY THE END OF THIS BOOK, YOU WILL HAVE MASTERED ALL THE CONCEPTS OF DEEP LEARNING AND THEIR IMPLEMENTATION WITH TENSORFLOW, AND WILL BE ABLE TO BUILD AND TRAIN YOUR OWN DEEP LEARNING MODELS WITH TENSORFLOW CONFIDENTLY. WHAT YOU WILL LEARN SET UP THE TENSORFLOW ENVIRONMENT FOR DEEP LEARNING CONSTRUCT YOUR OWN CONVNETS FOR EFFECTIVE IMAGE PROCESSING USE LSTMS FOR IMAGE CAPTION GENERATION FORECAST STOCK PREDICTION ACCURATELY WITH AN LSTM ARCHITECTURE LEARN WHAT SEMANTIC MATCHING IS BY DETECTING DUPLICATE QUORA QUESTIONS SET UP AN AWS INSTANCE WITH TENSORFLOW TO TRAIN GANS TRAIN AND SET UP A CHATBOT TO

UNDERSTAND AND INTERPRET HUMAN INPUT BUILD AN AI CAPABLE OF PLAYING A VIDEO GAME BY ITSELF -AND WIN IT! WHO THIS BOOK IS FOR THIS BOOK IS FOR DATA SCIENTISTS, MACHINE LEARNING DEVELOPERS AS WELL AS DEEP LEARNING PRACTITIONERS, WHO WANT TO BUILD INTERESTING DEEP LEARNING PROJECTS THAT LEVERAGE THE POWER OF TENSORFLOW. SOME UNDERSTANDING OF MACHINE LEARNING AND DEEP LEARNING, AND FAMILIARITY WITH THE TENSORFLOW FRAMEWORK IS ALL YOU NEED TO GET STARTED WITH THIS BOOK.

DEEP LEARNING FOR CODERS WITH FASTAI AND PYTORCH - JEREMY HOWARD 2020-06-29
DEEP LEARNING IS OFTEN VIEWED AS THE EXCLUSIVE DOMAIN OF MATH PHDS AND BIG TECH COMPANIES. BUT AS THIS HANDS-ON GUIDE DEMONSTRATES, PROGRAMMERS COMFORTABLE WITH PYTHON CAN ACHIEVE IMPRESSIVE RESULTS IN DEEP LEARNING WITH LITTLE MATH BACKGROUND, SMALL AMOUNTS OF DATA, AND MINIMAL CODE. HOW? WITH FASTAI, THE FIRST LIBRARY TO PROVIDE A CONSISTENT INTERFACE TO THE MOST FREQUENTLY USED DEEP LEARNING APPLICATIONS. AUTHORS JEREMY HOWARD AND SYLVAIN GUGGER, THE CREATORS OF FASTAI, SHOW YOU HOW TO TRAIN A MODEL ON A WIDE RANGE OF TASKS USING FASTAI AND PYTORCH. YOU'LL ALSO DIVE PROGRESSIVELY FURTHER INTO DEEP LEARNING THEORY TO GAIN A COMPLETE UNDERSTANDING OF THE ALGORITHMS BEHIND THE SCENES. TRAIN MODELS IN COMPUTER VISION, NATURAL LANGUAGE PROCESSING, TABULAR DATA, AND COLLABORATIVE FILTERING LEARN THE LATEST DEEP LEARNING TECHNIQUES THAT MATTER MOST IN PRACTICE IMPROVE ACCURACY, SPEED, AND RELIABILITY BY UNDERSTANDING HOW DEEP LEARNING MODELS WORK DISCOVER HOW TO TURN YOUR MODELS INTO WEB APPLICATIONS IMPLEMENT DEEP LEARNING ALGORITHMS FROM SCRATCH CONSIDER THE ETHICAL IMPLICATIONS OF YOUR WORK GAIN INSIGHT FROM THE FOREWORD BY PYTORCH COFOUNDER, SOUMITH CHINTALA FUNDAMENTALS OF DEEP LEARNING AND COMPUTER VISION - NIKHIL SINGH 2020-02-24
MASTER COMPUTER VISION CONCEPTS USING DEEP LEARNING WITH EASY-TO-FOLLOW STEPS DESCRIPTION THIS BOOK STARTS WITH SETTING UP A PYTHON VIRTUAL ENVIRONMENT WITH THE DEEP LEARNING FRAMEWORK TENSORFLOW AND THEN INTRODUCES THE

FUNDAMENTAL CONCEPTS OF TENSORFLOW. BEFORE MOVING ON TO COMPUTER VISION, YOU WILL LEARN ABOUT NEURAL NETWORKS AND RELATED ASPECTS SUCH AS LOSS FUNCTIONS, GRADIENT DESCENT OPTIMIZATION, ACTIVATION FUNCTIONS AND HOW BACKPROPAGATION WORKS FOR TRAINING MULTI-LAYER PERCEPTRONS. TO UNDERSTAND HOW THE CONVOLUTIONAL NEURAL NETWORK (CNN) IS USED FOR COMPUTER VISION PROBLEMS, YOU NEED TO LEARN ABOUT THE BASIC CONVOLUTION OPERATION. YOU WILL LEARN HOW CNN IS DIFFERENT FROM A MULTI-LAYER PERCEPTRON ALONG WITH A THOROUGH DISCUSSION ON THE DIFFERENT BUILDING BLOCKS OF THE CNN ARCHITECTURE SUCH AS KERNEL SIZE, STRIDE, PADDING, AND POOLING AND FINALLY LEARN HOW TO BUILD A SMALL CNN MODEL. NEXT, YOU WILL LEARN ABOUT DIFFERENT POPULAR CNN ARCHITECTURES SUCH AS ALEXNET, VGGNET, INCEPTION, AND RESNETS ALONG WITH DIFFERENT OBJECT DETECTION ALGORITHMS SUCH AS RCNN, SSD, AND YOLO. THE BOOK CONCLUDES WITH A CHAPTER ON SEQUENTIAL MODELS WHERE YOU WILL LEARN ABOUT RNN, GRU, AND LSTMS AND THEIR ARCHITECTURES AND UNDERSTAND THEIR APPLICATIONS IN MACHINE TRANSLATION, IMAGE/VIDEO CAPTIONING AND VIDEO CLASSIFICATION. KEY FEATURES SETTING UP THE PYTHON AND TENSORFLOW ENVIRONMENT LEARN CORE TENSORFLOW CONCEPTS WITH THE LATEST TF VERSION 2.0 LEARN DEEP LEARNING FOR COMPUTER VISION APPLICATIONS UNDERSTAND DIFFERENT COMPUTER VISION CONCEPTS AND USE-CASES UNDERSTAND DIFFERENT STATE-OF-THE-ART CNN ARCHITECTURES BUILD DEEP NEURAL NETWORKS WITH TRANSFER LEARNING USING FEATURES FROM PRE-TRAINED CNN MODELS APPLY COMPUTER VISION CONCEPTS WITH EASY-TO-FOLLOW CODE IN JUPYTER NOTEBOOK WHAT WILL YOU LEARN THIS BOOK WILL HELP THE READERS TO UNDERSTAND AND APPLY THE LATEST DEEP LEARNING TECHNOLOGIES TO DIFFERENT INTERESTING COMPUTER VISION APPLICATIONS WITHOUT ANY PRIOR DOMAIN KNOWLEDGE OF IMAGE PROCESSING. THUS, HELPING THE USERS TO ACQUIRE NEW SKILLS SPECIFIC TO COMPUTER VISION AND DEEP LEARNING AND BUILD SOLUTIONS TO REAL-LIFE PROBLEMS SUCH AS IMAGE CLASSIFICATION AND OBJECT DETECTION. THIS BOOK WILL SERVE AS A BASIC GUIDE FOR ALL THE BEGINNERS TO MASTER DEEP LEARNING AND COMPUTER VISION WITH LUCID AND INTUITIVE EXPLANATIONS USING BASIC MATHEMATICAL CONCEPTS. IT ALSO EXPLORES THESE CONCEPTS WITH POPULAR THE DEEP LEARNING FRAMEWORK TENSORFLOW. WHO THIS BOOK IS FOR THIS BOOK IS FOR ALL THE DATA SCIENCE ENTHUSIASTS AND PRACTITIONERS WHO INTEND TO LEARN AND MASTER COMPUTER VISION CONCEPTS AND THEIR APPLICATIONS USING DEEP LEARNING. THIS BOOK ASSUMES A BASIC PYTHON UNDERSTANDING WITH HANDS-ON EXPERIENCE. A BASIC SENIOR SECONDARY LEVEL UNDERSTANDING OF MATHEMATICS WILL HELP THE READER TO MAKE THE BEST OUT OF THIS BOOK. TABLE OF CONTENTS 1. INTRODUCTION TO TENSORFLOW 2. INTRODUCTION TO NEURAL NETWORKS 3. CONVOLUTIONAL NEURAL NETWORK 4. CNN ARCHITECTURES 5. SEQUENTIAL MODELS **HANDS-ON CONVOLUTIONAL NEURAL NETWORKS WITH TENSORFLOW** - IFFAT ZAFAR 2018-08-28 LEARN HOW TO APPLY TENSORFLOW TO A WIDE RANGE OF DEEP LEARNING AND MACHINE

LEARNING PROBLEMS WITH THIS PRACTICAL GUIDE ON TRAINING CNNs FOR IMAGE CLASSIFICATION, IMAGE RECOGNITION, OBJECT DETECTION AND MANY COMPUTER VISION CHALLENGES. KEY FEATURES LEARN THE FUNDAMENTALS OF CONVOLUTIONAL NEURAL NETWORKS HARNESS PYTHON AND TENSORFLOW TO TRAIN CNNs BUILD SCALABLE DEEP LEARNING MODELS THAT CAN PROCESS MILLIONS OF ITEMS BOOK DESCRIPTION CONVOLUTIONAL NEURAL NETWORKS (CNN) ARE ONE OF THE MOST POPULAR ARCHITECTURES USED IN COMPUTER VISION APPS. THIS BOOK IS AN INTRODUCTION TO CNNs THROUGH SOLVING REAL-WORLD PROBLEMS IN DEEP LEARNING WHILE TEACHING YOU THEIR IMPLEMENTATION IN POPULAR PYTHON LIBRARY - TENSORFLOW. BY THE END OF THE BOOK, YOU WILL BE TRAINING CNNs IN NO TIME! WE START WITH AN OVERVIEW OF POPULAR MACHINE LEARNING AND DEEP LEARNING MODELS, AND THEN GET YOU SET UP WITH A TENSORFLOW DEVELOPMENT ENVIRONMENT. THIS ENVIRONMENT IS THE BASIS FOR IMPLEMENTING AND TRAINING DEEP LEARNING MODELS IN LATER CHAPTERS. THEN, YOU WILL USE CONVOLUTIONAL NEURAL NETWORKS TO WORK ON PROBLEMS SUCH AS IMAGE CLASSIFICATION, OBJECT DETECTION, AND SEMANTIC SEGMENTATION. AFTER THAT, YOU WILL USE TRANSFER LEARNING TO SEE HOW THESE MODELS CAN SOLVE OTHER DEEP LEARNING PROBLEMS. YOU WILL ALSO GET A TASTE OF IMPLEMENTING GENERATIVE MODELS SUCH AS AUTOENCODERS AND GENERATIVE ADVERSARIAL NETWORKS. LATER ON, YOU WILL SEE USEFUL TIPS ON MACHINE LEARNING BEST PRACTICES AND TROUBLESHOOTING. FINALLY, YOU WILL LEARN HOW TO APPLY YOUR MODELS ON LARGE DATASETS OF MILLIONS OF IMAGES. WHAT YOU WILL LEARN TRAIN MACHINE LEARNING MODELS WITH TENSORFLOW CREATE SYSTEMS THAT CAN EVOLVE AND SCALE DURING THEIR LIFE CYCLE USE CNNs IN IMAGE RECOGNITION AND CLASSIFICATION USE TENSORFLOW FOR BUILDING DEEP LEARNING MODELS TRAIN POPULAR DEEP LEARNING MODELS FINE-TUNE A NEURAL NETWORK TO IMPROVE THE QUALITY OF RESULTS WITH TRANSFER LEARNING BUILD TENSORFLOW MODELS THAT CAN SCALE TO LARGE DATASETS AND SYSTEMS WHO THIS BOOK IS FOR THIS BOOK IS FOR SOFTWARE ENGINEERS, DATA SCIENTISTS, OR MACHINE LEARNING PRACTITIONERS WHO WANT TO USE CNNs FOR SOLVING REAL-WORLD PROBLEMS. KNOWLEDGE OF BASIC MACHINE LEARNING CONCEPTS, LINEAR ALGEBRA AND PYTHON WILL HELP. **PYTHON DEEP LEARNING PROJECTS** - MATTHEW LAMONS 2018-10-31 INSIGHTFUL PROJECTS TO MASTER DEEP LEARNING AND NEURAL NETWORK ARCHITECTURES USING PYTHON AND KERAS KEY FEATURES EXPLORE DEEP LEARNING ACROSS COMPUTER VISION, NATURAL LANGUAGE PROCESSING (NLP), AND IMAGE PROCESSING DISCOVER BEST PRACTICES FOR THE TRAINING OF DEEP NEURAL NETWORKS AND THEIR DEPLOYMENT ACCESS POPULAR DEEP LEARNING MODELS AS WELL AS WIDELY USED NEURAL NETWORK ARCHITECTURES BOOK DESCRIPTION DEEP LEARNING HAS BEEN GRADUALLY REVOLUTIONIZING EVERY FIELD OF ARTIFICIAL INTELLIGENCE, MAKING APPLICATION DEVELOPMENT EASIER. PYTHON DEEP LEARNING PROJECTS IMPARTS ALL THE KNOWLEDGE NEEDED TO IMPLEMENT COMPLEX DEEP LEARNING PROJECTS IN THE FIELD OF COMPUTATIONAL LINGUISTICS AND COMPUTER VISION. EACH OF THESE PROJECTS IS UNIQUE, HELPING YOU PROGRESSIVELY

MASTER THE SUBJECT. YOU'LL LEARN HOW TO IMPLEMENT A TEXT CLASSIFIER SYSTEM USING A RECURRENT NEURAL NETWORK (RNN) MODEL AND OPTIMIZE IT TO UNDERSTAND THE SHORTCOMINGS YOU MIGHT EXPERIENCE WHILE IMPLEMENTING A SIMPLE DEEP LEARNING SYSTEM. SIMILARLY, YOU'LL DISCOVER HOW TO DEVELOP VARIOUS PROJECTS, INCLUDING WORD VECTOR REPRESENTATION, OPEN DOMAIN QUESTION ANSWERING, AND BUILDING CHATBOTS USING SEQ-TO-SEQ MODELS AND LANGUAGE MODELING. IN ADDITION TO THIS, YOU'LL COVER ADVANCED CONCEPTS, SUCH AS REGULARIZATION, GRADIENT CLIPPING, GRADIENT NORMALIZATION, AND BIDIRECTIONAL RNNs, THROUGH A SERIES OF ENGAGING PROJECTS. BY THE END OF THIS BOOK, YOU WILL HAVE GAINED KNOWLEDGE TO DEVELOP YOUR OWN DEEP LEARNING SYSTEMS IN A STRAIGHTFORWARD WAY AND IN AN EFFICIENT WAY. WHAT YOU WILL LEARN: SET UP A DEEP LEARNING DEVELOPMENT ENVIRONMENT ON AMAZON WEB SERVICES (AWS); APPLY GPU-POWERED INSTANCES AS WELL AS THE DEEP LEARNING AMI; IMPLEMENT SEQ-TO-SEQ NETWORKS FOR MODELING NATURAL LANGUAGE PROCESSING (NLP); DEVELOP AN END-TO-END SPEECH RECOGNITION SYSTEM; BUILD A SYSTEM FOR PIXEL-WISE SEMANTIC LABELING OF AN IMAGE; CREATE A SYSTEM THAT GENERATES IMAGES AND THEIR REGIONS. WHO THIS BOOK IS FOR: PYTHON DEEP LEARNING PROJECTS IS FOR YOU IF YOU WANT TO GET INSIGHTS INTO DEEP LEARNING, DATA SCIENCE, AND ARTIFICIAL INTELLIGENCE. THIS BOOK IS ALSO FOR THOSE WHO WANT TO BREAK INTO DEEP LEARNING AND DEVELOP THEIR OWN AI PROJECTS. IT IS ASSUMED THAT YOU HAVE SOUND KNOWLEDGE OF PYTHON PROGRAMMING.

MACHINE LEARNING FOR OPENCV - MICHAEL BEYELER 2017-07-13

EXPAND YOUR OPENCV KNOWLEDGE AND MASTER KEY CONCEPTS OF MACHINE LEARNING USING THIS PRACTICAL, HANDS-ON GUIDE. ABOUT THIS BOOK: * LOAD, STORE, EDIT, AND VISUALIZE DATA USING OPENCV AND PYTHON * GRASP THE FUNDAMENTAL CONCEPTS OF CLASSIFICATION, REGRESSION, AND CLUSTERING * UNDERSTAND, PERFORM, AND EXPERIMENT WITH MACHINE LEARNING TECHNIQUES USING THIS EASY-TO-FOLLOW GUIDE * EVALUATE, COMPARE, AND CHOOSE THE RIGHT ALGORITHM FOR ANY TASK. WHO THIS BOOK IS FOR: THIS BOOK TARGETS PYTHON PROGRAMMERS WHO ARE ALREADY FAMILIAR WITH OPENCV; THIS BOOK WILL GIVE YOU THE TOOLS AND UNDERSTANDING REQUIRED TO BUILD YOUR OWN MACHINE LEARNING SYSTEMS, TAILORED TO PRACTICAL REAL-WORLD TASKS. WHAT YOU WILL LEARN: * EXPLORE AND MAKE EFFECTIVE USE OF OPENCV'S MACHINE LEARNING MODULE * LEARN DEEP LEARNING FOR COMPUTER VISION WITH PYTHON * MASTER LINEAR REGRESSION AND REGULARIZATION TECHNIQUES * CLASSIFY OBJECTS SUCH AS FLOWER SPECIES, HANDWRITTEN DIGITS, AND PEDESTRIANS * EXPLORE THE EFFECTIVE USE OF SUPPORT VECTOR MACHINES, BOOSTED DECISION TREES, AND RANDOM FORESTS * GET ACQUAINTED WITH NEURAL NETWORKS AND DEEP LEARNING TO ADDRESS REAL-WORLD PROBLEMS * DISCOVER HIDDEN STRUCTURES IN YOUR DATA USING K-MEANS CLUSTERING * GET TO GRIPS WITH DATA PRE-PROCESSING AND FEATURE ENGINEERING. IN DETAIL: MACHINE LEARNING IS NO LONGER JUST A BUZZWORD, IT IS ALL AROUND US: FROM PROTECTING YOUR EMAIL, TO AUTOMATICALLY TAGGING FRIENDS IN PICTURES, TO PREDICTING WHAT MOVIES YOU LIKE. COMPUTER VISION IS ONE OF TODAY'S MOST EXCITING APPLICATION FIELDS OF MACHINE LEARNING, WITH DEEP

LEARNING DRIVING INNOVATIVE SYSTEMS SUCH AS SELF-DRIVING CARS AND GOOGLE'S DEEPMIND. OPENCV LIES AT THE INTERSECTION OF THESE TOPICS, PROVIDING A COMPREHENSIVE OPEN-SOURCE LIBRARY FOR CLASSIC AS WELL AS STATE-OF-THE-ART COMPUTER VISION AND MACHINE LEARNING ALGORITHMS. IN COMBINATION WITH PYTHON ANACONDA, YOU WILL HAVE ACCESS TO ALL THE OPEN-SOURCE COMPUTING LIBRARIES YOU COULD POSSIBLY ASK FOR. MACHINE LEARNING FOR OPENCV BEGINS BY INTRODUCING YOU TO THE ESSENTIAL CONCEPTS OF STATISTICAL LEARNING, SUCH AS CLASSIFICATION AND REGRESSION. ONCE ALL THE BASICS ARE COVERED, YOU WILL START EXPLORING VARIOUS ALGORITHMS SUCH AS DECISION TREES, SUPPORT VECTOR MACHINES, AND BAYESIAN NETWORKS, AND LEARN HOW TO COMBINE THEM WITH OTHER OPENCV FUNCTIONALITY. AS THE BOOK PROGRESSES, SO WILL YOUR MACHINE LEARNING SKILLS, UNTIL YOU ARE READY TO TAKE ON TODAY'S HOTTEST TOPIC IN THE FIELD: DEEP LEARNING. BY THE END OF THIS BOOK, YOU WILL BE READY TO TAKE ON YOUR OWN MACHINE LEARNING PROBLEMS, EITHER BY BUILDING ON THE EXISTING SOURCE CODE OR DEVELOPING YOUR OWN ALGORITHM FROM SCRATCH! STYLE AND APPROACH: OPENCV MACHINE LEARNING CONNECTS THE FUNDAMENTAL THEORETICAL PRINCIPLES BEHIND MACHINE LEARNING TO THEIR PRACTICAL APPLICATIONS IN A WAY THAT FOCUSES ON ASKING AND ANSWERING THE RIGHT QUESTIONS. THIS BOOK WALKS YOU THROUGH THE KEY ELEMENTS OF OPENCV AND ITS POWERFUL MACHINE LEARNING CLASSES, WHILE DEMONSTRATING HOW TO GET TO GRIPS WITH A RANGE OF MODELS.

PYTHON DEEP LEARNING - IVAN VASILEV 2019-01-16

LEARN ADVANCED STATE-OF-THE-ART DEEP LEARNING TECHNIQUES AND THEIR APPLICATIONS USING POPULAR PYTHON LIBRARIES. KEY FEATURES: BUILD A STRONG FOUNDATION IN NEURAL NETWORKS AND DEEP LEARNING WITH PYTHON LIBRARIES; EXPLORE ADVANCED DEEP LEARNING TECHNIQUES AND THEIR APPLICATIONS ACROSS COMPUTER VISION AND NLP; LEARN HOW A COMPUTER CAN NAVIGATE IN COMPLEX ENVIRONMENTS WITH REINFORCEMENT LEARNING. BOOK DESCRIPTION: WITH THE SURGE IN ARTIFICIAL INTELLIGENCE IN APPLICATIONS CATERING TO BOTH BUSINESS AND CONSUMER NEEDS, DEEP LEARNING IS MORE IMPORTANT THAN EVER FOR MEETING CURRENT AND FUTURE MARKET DEMANDS. WITH THIS BOOK, YOU'LL EXPLORE DEEP LEARNING, AND LEARN HOW TO PUT MACHINE LEARNING TO USE IN YOUR PROJECTS. THIS SECOND EDITION OF PYTHON DEEP LEARNING WILL GET YOU UP TO SPEED WITH DEEP LEARNING, DEEP NEURAL NETWORKS, AND HOW TO TRAIN THEM WITH HIGH-PERFORMANCE ALGORITHMS AND POPULAR PYTHON FRAMEWORKS. YOU'LL UNCOVER DIFFERENT NEURAL NETWORK ARCHITECTURES, SUCH AS CONVOLUTIONAL NETWORKS, RECURRENT NEURAL NETWORKS, LONG SHORT-TERM MEMORY (LSTM) NETWORKS, AND CAPSULE NETWORKS. YOU'LL ALSO LEARN HOW TO SOLVE PROBLEMS IN THE FIELDS OF COMPUTER VISION, NATURAL LANGUAGE PROCESSING (NLP), AND SPEECH RECOGNITION. YOU'LL STUDY GENERATIVE MODEL APPROACHES SUCH AS VARIATIONAL AUTOENCODERS AND GENERATIVE ADVERSARIAL NETWORKS (GANs) TO GENERATE IMAGES. AS YOU DELVE INTO NEWLY EVOLVED AREAS OF REINFORCEMENT LEARNING, YOU'LL GAIN AN UNDERSTANDING OF STATE-OF-THE-ART ALGORITHMS THAT ARE THE MAIN COMPONENTS BEHIND POPULAR GAMES GO,

ATARI, AND DOTA. BY THE END OF THE BOOK, YOU WILL BE WELL-VERSED WITH THE THEORY OF DEEP LEARNING ALONG WITH ITS REAL-WORLD APPLICATIONS. WHAT YOU WILL LEARN GRASP THE MATHEMATICAL THEORY BEHIND NEURAL NETWORKS AND DEEP LEARNING PROCESSES INVESTIGATE AND RESOLVE COMPUTER VISION CHALLENGES USING CONVOLUTIONAL NETWORKS AND CAPSULE NETWORKS SOLVE GENERATIVE TASKS USING VARIATIONAL AUTOENCODERS AND GENERATIVE ADVERSARIAL NETWORKS IMPLEMENT COMPLEX NLP TASKS USING RECURRENT NETWORKS (LSTM AND GRU) AND ATTENTION MODELS EXPLORE REINFORCEMENT LEARNING AND UNDERSTAND HOW AGENTS BEHAVE IN A COMPLEX ENVIRONMENT GET UP TO DATE WITH APPLICATIONS OF DEEP LEARNING IN AUTONOMOUS VEHICLES WHO THIS BOOK IS FOR THIS BOOK IS FOR DATA SCIENCE PRACTITIONERS, MACHINE LEARNING ENGINEERS, AND THOSE INTERESTED IN DEEP LEARNING WHO HAVE A BASIC FOUNDATION IN MACHINE LEARNING AND SOME PYTHON PROGRAMMING EXPERIENCE. A BACKGROUND IN MATHEMATICS AND CONCEPTUAL UNDERSTANDING OF CALCULUS AND STATISTICS WILL HELP YOU GAIN MAXIMUM BENEFIT FROM THIS BOOK.

DEEP LEARNING FOR COMPUTER VISION - JASON BROWNLEE 2019-04-04

STEP-BY-STEP TUTORIALS ON DEEP LEARNING NEURAL NETWORKS FOR COMPUTER VISION IN PYTHON WITH KERAS.

PRACTICAL COMPUTER VISION - ABHINAV DADHICH 2018-02-05

A PRACTICAL GUIDE DESIGNED TO GET YOU FROM BASICS TO CURRENT STATE OF ART IN COMPUTER VISION SYSTEMS. KEY FEATURES MASTER THE DIFFERENT TASKS ASSOCIATED WITH COMPUTER VISION AND DEVELOP YOUR OWN COMPUTER VISION APPLICATIONS WITH EASE LEVERAGE THE POWER OF PYTHON, TENSORFLOW, KERAS, AND OPENCV TO PERFORM IMAGE PROCESSING, OBJECT DETECTION, FEATURE DETECTION AND MORE WITH REAL-WORLD DATASETS AND FULLY FUNCTIONAL CODE, THIS BOOK IS YOUR ONE-STOP GUIDE TO UNDERSTANDING COMPUTER VISION BOOK DESCRIPTION IN THIS BOOK, YOU WILL FIND SEVERAL RECENTLY PROPOSED METHODS IN VARIOUS DOMAINS OF COMPUTER VISION. YOU WILL START BY SETTING UP THE PROPER PYTHON ENVIRONMENT TO WORK ON PRACTICAL APPLICATIONS. THIS INCLUDES SETTING UP LIBRARIES SUCH AS OPENCV, TENSORFLOW, AND KERAS USING ANACONDA. USING THESE LIBRARIES, YOU'LL START TO UNDERSTAND THE CONCEPTS OF IMAGE TRANSFORMATION AND FILTERING. YOU WILL FIND A DETAILED EXPLANATION OF FEATURE DETECTORS SUCH AS FAST AND ORB; YOU'LL USE THEM TO FIND SIMILAR-LOOKING OBJECTS. WITH AN INTRODUCTION TO CONVOLUTIONAL NEURAL NETS, YOU WILL LEARN HOW TO BUILD A DEEP NEURAL NET USING KERAS AND HOW TO USE IT TO CLASSIFY THE FASHION-MNIST DATASET. WITH REGARD TO OBJECT DETECTION, YOU WILL LEARN THE IMPLEMENTATION OF A SIMPLE FACE DETECTOR AS WELL AS THE WORKINGS OF COMPLEX DEEP-LEARNING-BASED OBJECT DETECTORS SUCH AS FASTER R-CNN AND SSD USING TENSORFLOW. YOU'LL GET STARTED WITH SEMANTIC SEGMENTATION USING FCN MODELS AND TRACK OBJECTS WITH DEEP SORT. NOT ONLY THIS, YOU WILL ALSO USE VISUAL SLAM TECHNIQUES SUCH AS ORB-SLAM ON A STANDARD DATASET. BY THE END OF THIS BOOK, YOU WILL HAVE A FIRM UNDERSTANDING OF THE DIFFERENT COMPUTER VISION

TECHNIQUES AND HOW TO APPLY THEM IN YOUR APPLICATIONS. WHAT YOU WILL LEARN LEARN THE BASICS OF IMAGE MANIPULATION WITH OPENCV IMPLEMENT AND VISUALIZE IMAGE FILTERS SUCH AS SMOOTHING, DILATION, HISTOGRAM EQUALIZATION, AND MORE SET UP VARIOUS LIBRARIES AND PLATFORMS, SUCH AS OPENCV, KERAS, AND TENSORFLOW, IN ORDER TO START USING COMPUTER VISION, ALONG WITH APPROPRIATE DATASETS FOR EACH CHAPTER, SUCH AS MSCOCO, MOT, AND FASHION-MNIST UNDERSTAND IMAGE TRANSFORMATION AND DOWNSAMPLING WITH PRACTICAL IMPLEMENTATIONS. EXPLORE NEURAL NETWORKS FOR COMPUTER VISION AND CONVOLUTIONAL NEURAL NETWORKS USING KERAS UNDERSTAND WORKING ON DEEP-LEARNING-BASED OBJECT DETECTION SUCH AS FASTER-R-CNN, SSD, AND MORE EXPLORE DEEP-LEARNING-BASED OBJECT TRACKING IN ACTION UNDERSTAND VISUAL SLAM TECHNIQUES SUCH AS ORB-SLAM WHO THIS BOOK IS FOR THIS BOOK IS FOR MACHINE LEARNING PRACTITIONERS AND DEEP LEARNING ENTHUSIASTS WHO WANT TO UNDERSTAND AND IMPLEMENT VARIOUS TASKS ASSOCIATED WITH COMPUTER VISION AND IMAGE PROCESSING IN THE MOST PRACTICAL MANNER POSSIBLE. SOME PROGRAMMING EXPERIENCE WOULD BE BENEFICIAL WHILE KNOWING PYTHON WOULD BE AN ADDED BONUS.

BUILDING MACHINE LEARNING SYSTEMS WITH PYTHON - LUIS PEDRO COELHO 2018-07-31

GET MORE FROM YOUR DATA BY CREATING PRACTICAL MACHINE LEARNING SYSTEMS WITH PYTHON KEY FEATURES DEVELOP YOUR OWN PYTHON-BASED MACHINE LEARNING SYSTEM DISCOVER HOW PYTHON OFFERS MULTIPLE ALGORITHMS FOR MODERN MACHINE LEARNING SYSTEMS EXPLORE KEY PYTHON MACHINE LEARNING LIBRARIES TO IMPLEMENT IN YOUR PROJECTS BOOK DESCRIPTION MACHINE LEARNING ALLOWS SYSTEMS TO LEARN THINGS WITHOUT BEING EXPLICITLY PROGRAMMED TO DO SO. PYTHON IS ONE OF THE MOST POPULAR LANGUAGES USED TO DEVELOP MACHINE LEARNING APPLICATIONS, WHICH TAKE ADVANTAGE OF ITS EXTENSIVE LIBRARY SUPPORT. THIS THIRD EDITION OF BUILDING MACHINE LEARNING SYSTEMS WITH PYTHON ADDRESSES RECENT DEVELOPMENTS IN THE FIELD BY COVERING THE MOST-USED DATASETS AND LIBRARIES TO HELP YOU BUILD PRACTICAL MACHINE LEARNING SYSTEMS. USING MACHINE LEARNING TO GAIN DEEPER INSIGHTS FROM DATA IS A KEY SKILL REQUIRED BY MODERN APPLICATION DEVELOPERS AND ANALYSTS ALIKE. PYTHON, BEING A DYNAMIC LANGUAGE, ALLOWS FOR FAST EXPLORATION AND EXPERIMENTATION. THIS BOOK SHOWS YOU EXACTLY HOW TO FIND PATTERNS IN YOUR RAW DATA. YOU WILL START BY BRUSHING UP ON YOUR PYTHON MACHINE LEARNING KNOWLEDGE AND BEING INTRODUCED TO LIBRARIES. YOU'LL QUICKLY GET TO GRIPS WITH SERIOUS, REAL-WORLD PROJECTS ON DATASETS, USING MODELING AND CREATING RECOMMENDATION SYSTEMS. WITH BUILDING MACHINE LEARNING SYSTEMS WITH PYTHON, YOU'LL GAIN THE TOOLS AND UNDERSTANDING REQUIRED TO BUILD YOUR OWN SYSTEMS, ALL TAILORED TO SOLVE REAL-WORLD DATA ANALYSIS PROBLEMS. BY THE END OF THIS BOOK, YOU WILL BE ABLE TO BUILD MACHINE LEARNING SYSTEMS USING TECHNIQUES AND METHODOLOGIES SUCH AS CLASSIFICATION, SENTIMENT ANALYSIS, COMPUTER VISION, REINFORCEMENT LEARNING, AND NEURAL NETWORKS. WHAT YOU WILL LEARN BUILD A CLASSIFICATION SYSTEM THAT CAN BE APPLIED TO TEXT,

IMAGES, AND SOUND EMPLOY AMAZON WEB SERVICES (AWS) TO RUN ANALYSIS ON THE CLOUD SOLVE PROBLEMS RELATED TO REGRESSION USING SCIKIT-LEARN AND TENSORFLOW RECOMMEND PRODUCTS TO USERS BASED ON THEIR PAST PURCHASES UNDERSTAND DIFFERENT WAYS TO APPLY DEEP NEURAL NETWORKS ON STRUCTURED DATA ADDRESS RECENT DEVELOPMENTS IN THE FIELD OF COMPUTER VISION AND REINFORCEMENT LEARNING WHO THIS BOOK IS FOR BUILDING MACHINE LEARNING SYSTEMS WITH PYTHON IS FOR DATA SCIENTISTS, MACHINE LEARNING DEVELOPERS, AND PYTHON DEVELOPERS WHO WANT TO LEARN HOW TO BUILD INCREASINGLY COMPLEX MACHINE LEARNING SYSTEMS. YOU WILL USE PYTHON'S MACHINE LEARNING CAPABILITIES TO DEVELOP EFFECTIVE SOLUTIONS. PRIOR KNOWLEDGE OF PYTHON PROGRAMMING IS EXPECTED.

HANDS-ON DEEP LEARNING FOR IMAGES WITH TENSORFLOW - WILL BALLARD
2018-07-31

EXPLORE TENSORFLOW'S CAPABILITIES TO PERFORM EFFICIENT DEEP LEARNING ON IMAGES KEY FEATURES DISCOVER IMAGE PROCESSING FOR MACHINE VISION BUILD AN EFFECTIVE IMAGE CLASSIFICATION SYSTEM USING THE POWER OF CNNs LEVERAGE TENSORFLOW'S CAPABILITIES TO PERFORM EFFICIENT DEEP LEARNING BOOK DESCRIPTION TENSORFLOW IS GOOGLE'S POPULAR OFFERING FOR MACHINE LEARNING AND DEEP LEARNING, QUICKLY BECOMING A FAVORITE TOOL FOR PERFORMING FAST, EFFICIENT, AND ACCURATE DEEP LEARNING TASKS. HANDS-ON DEEP LEARNING FOR IMAGES WITH TENSORFLOW SHOWS YOU THE PRACTICAL IMPLEMENTATIONS OF REAL-WORLD PROJECTS, TEACHING YOU HOW TO LEVERAGE TENSORFLOW'S CAPABILITIES TO PERFORM EFFICIENT IMAGE PROCESSING USING THE POWER OF DEEP LEARNING. WITH THE HELP OF THIS BOOK, YOU WILL GET TO GRIPS WITH THE DIFFERENT PARADIGMS OF PERFORMING DEEP LEARNING SUCH AS DEEP NEURAL NETS AND CONVOLUTIONAL NEURAL NETWORKS, FOLLOWED BY UNDERSTANDING HOW THEY CAN BE IMPLEMENTED USING TENSORFLOW. BY THE END OF THIS BOOK, YOU WILL HAVE MASTERED ALL THE CONCEPTS OF DEEP LEARNING AND THEIR IMPLEMENTATION WITH TENSORFLOW AND KERAS. WHAT YOU WILL LEARN BUILD MACHINE LEARNING MODELS PARTICULARLY FOCUSED ON THE MNIST DIGITS WORK WITH DOCKER AND KERAS TO BUILD AN IMAGE CLASSIFIER UNDERSTAND NATURAL LANGUAGE MODELS TO PROCESS TEXT AND IMAGES PREPARE YOUR DATASET FOR MACHINE LEARNING CREATE CLASSICAL, CONVOLUTIONAL, AND DEEP NEURAL NETWORKS CREATE A RESTFUL IMAGE CLASSIFICATION SERVER WHO THIS BOOK IS FOR HANDS-ON DEEP LEARNING FOR IMAGES WITH TENSORFLOW IS FOR YOU IF YOU ARE AN APPLICATION DEVELOPER, DATA SCIENTIST, OR MACHINE LEARNING PRACTITIONER LOOKING TO INTEGRATE MACHINE LEARNING INTO APPLICATION SOFTWARE AND MASTER DEEP LEARNING BY IMPLEMENTING PRACTICAL PROJECTS IN TENSORFLOW. KNOWLEDGE OF PYTHON PROGRAMMING AND BASICS OF DEEP LEARNING ARE REQUIRED TO GET THE BEST OUT OF THIS BOOK.

3D DEEP LEARNING WITH PYTHON - XUDONG MA 2022-10-31

VISUALIZE AND BUILD DEEP LEARNING MODELS WITH 3D DATA USING PYTORCH3D AND OTHER PYTHON FRAMEWORKS TO CONQUER REAL-WORLD APPLICATION CHALLENGES WITH EASE KEY FEATURES UNDERSTAND 3D DATA PROCESSING WITH RENDERING, PYTORCH OPTIMIZATION,

AND HETEROGENEOUS BATCHING IMPLEMENT DIFFERENTIABLE RENDERING CONCEPTS WITH PRACTICAL EXAMPLES DISCOVER HOW YOU CAN EASE YOUR WORK WITH THE LATEST 3D DEEP LEARNING TECHNIQUES USING PYTORCH3D BOOK DESCRIPTION WITH THIS HANDS-ON GUIDE TO 3D DEEP LEARNING, DEVELOPERS WORKING WITH 3D COMPUTER VISION WILL BE ABLE TO PUT THEIR KNOWLEDGE TO WORK AND GET UP AND RUNNING IN NO TIME. COMPLETE WITH STEP-BY-STEP EXPLANATIONS OF ESSENTIAL CONCEPTS AND PRACTICAL EXAMPLES, THIS BOOK LETS YOU EXPLORE AND GAIN A THOROUGH UNDERSTANDING OF STATE-OF-THE-ART 3D DEEP LEARNING. YOU'LL SEE HOW TO USE PYTORCH3D FOR BASIC 3D MESH AND POINT CLOUD DATA PROCESSING, INCLUDING LOADING AND SAVING PLY AND OBJ FILES, PROJECTING 3D POINTS INTO CAMERA COORDINATION USING PERSPECTIVE CAMERA MODELS OR ORTHOGRAPHIC CAMERA MODELS, RENDERING POINT CLOUDS AND MESHES TO IMAGES, AND MUCH MORE. AS YOU IMPLEMENT SOME OF THE LATEST 3D DEEP LEARNING ALGORITHMS, SUCH AS DIFFERENTIAL RENDERING, NERF, SYNSIN, AND MESH RCNN, YOU'LL REALIZE HOW CODING FOR THESE DEEP LEARNING MODELS BECOMES EASIER USING THE PYTORCH3D LIBRARY. BY THE END OF THIS DEEP LEARNING BOOK, YOU'LL BE READY TO IMPLEMENT YOUR OWN 3D DEEP LEARNING MODELS CONFIDENTLY. WHAT YOU WILL LEARN DEVELOP 3D COMPUTER VISION MODELS FOR INTERACTING WITH THE ENVIRONMENT GET TO GRIPS WITH 3D DATA HANDLING WITH POINT CLOUDS, MESHES, PLY, AND OBJ FILE FORMAT WORK WITH 3D GEOMETRY, CAMERA MODELS, AND COORDINATION AND CONVERT BETWEEN THEM UNDERSTAND CONCEPTS OF RENDERING, SHADING, AND MORE WITH EASE IMPLEMENT DIFFERENTIAL RENDERING FOR MANY 3D DEEP LEARNING MODELS ADVANCED STATE-OF-THE-ART 3D DEEP LEARNING MODELS LIKE NERF, SYNSIN, MESH RCNN WHO THIS BOOK IS FOR THIS BOOK IS FOR BEGINNER TO INTERMEDIATE-LEVEL MACHINE LEARNING PRACTITIONERS, DATA SCIENTISTS, ML ENGINEERS, AND DL ENGINEERS WHO ARE LOOKING TO BECOME WELL-VERSED WITH COMPUTER VISION TECHNIQUES USING 3D DATA.

DEEP LEARNING FROM THE BASICS - KOKI SAITOH 2021-03-08

DISCOVER WAYS TO IMPLEMENT VARIOUS DEEP LEARNING ALGORITHMS BY LEVERAGING PYTHON AND OTHER TECHNOLOGIES KEY FEATURES LEARN DEEP LEARNING MODELS THROUGH SEVERAL ACTIVITIES BEGIN WITH SIMPLE MACHINE LEARNING PROBLEMS, AND FINISH BY BUILDING A COMPLEX SYSTEM OF YOUR OWN TEACH YOUR MACHINES TO SEE BY MASTERING THE TECHNOLOGIES REQUIRED FOR IMAGE RECOGNITION BOOK DESCRIPTION DEEP LEARNING IS RAPIDLY BECOMING THE MOST PREFERRED WAY OF SOLVING DATA PROBLEMS. THIS IS THANKS, IN PART, TO ITS HUGE VARIETY OF MATHEMATICAL ALGORITHMS AND THEIR ABILITY TO FIND PATTERNS THAT ARE OTHERWISE INVISIBLE TO US. DEEP LEARNING FROM THE BASICS BEGINS WITH A FAST-PACED INTRODUCTION TO DEEP LEARNING WITH PYTHON, ITS DEFINITION, CHARACTERISTICS, AND APPLICATIONS. YOU'LL LEARN HOW TO USE THE PYTHON INTERPRETER AND THE SCRIPT FILES IN YOUR APPLICATIONS, AND UTILIZE NUMPY AND MATPLOTLIB IN YOUR DEEP LEARNING MODELS. AS YOU PROGRESS THROUGH THE BOOK, YOU'LL DISCOVER BACKPROPAGATION—AN EFFICIENT WAY TO CALCULATE THE GRADIENTS OF WEIGHT PARAMETERS—AND STUDY MULTILAYER PERCEPTRONS AND THEIR LIMITATIONS,

BEFORE, FINALLY, IMPLEMENTING A THREE-LAYER NEURAL NETWORK AND CALCULATING MULTIDIMENSIONAL ARRAYS. BY THE END OF THE BOOK, YOU'LL HAVE THE KNOWLEDGE TO APPLY THE RELEVANT TECHNOLOGIES IN DEEP LEARNING. WHAT YOU WILL LEARN USE PYTHON WITH MINIMUM EXTERNAL SOURCES TO IMPLEMENT DEEP LEARNING PROGRAMS STUDY THE VARIOUS DEEP LEARNING AND NEURAL NETWORK THEORIES LEARN HOW TO DETERMINE LEARNING COEFFICIENTS AND THE INITIAL VALUES OF WEIGHTS IMPLEMENT TRENDS SUCH AS BATCH NORMALIZATION, DROPOUT, AND ADAM EXPLORE APPLICATIONS LIKE AUTOMATIC DRIVING, IMAGE GENERATION, AND REINFORCEMENT LEARNING WHO THIS BOOK IS FOR DEEP LEARNING FROM THE BASICS IS DESIGNED FOR DATA SCIENTISTS, DATA ANALYSTS, AND DEVELOPERS WHO WANT TO USE DEEP LEARNING TECHNIQUES TO DEVELOP EFFICIENT SOLUTIONS. THIS BOOK IS IDEAL FOR THOSE WHO WANT A DEEPER UNDERSTANDING AS WELL AS AN OVERVIEW OF THE TECHNOLOGIES. SOME WORKING KNOWLEDGE OF PYTHON IS A MUST. KNOWLEDGE OF NUMPY AND PANDAS WILL BE BENEFICIAL, BUT NOT ESSENTIAL.

PYTHON MACHINE LEARNING - SEBASTIAN RASCHKA 2017-09-20

UNLOCK MODERN MACHINE LEARNING AND DEEP LEARNING TECHNIQUES WITH PYTHON BY USING THE LATEST CUTTING-EDGE OPEN SOURCE PYTHON LIBRARIES. ABOUT THIS BOOK SECOND EDITION OF THE BESTSELLING BOOK ON MACHINE LEARNING A PRACTICAL APPROACH TO KEY FRAMEWORKS IN DATA SCIENCE, MACHINE LEARNING, AND DEEP LEARNING USE THE MOST POWERFUL PYTHON LIBRARIES TO IMPLEMENT MACHINE LEARNING AND DEEP LEARNING GET TO KNOW THE BEST PRACTICES TO IMPROVE AND OPTIMIZE YOUR MACHINE LEARNING SYSTEMS AND ALGORITHMS WHO THIS BOOK IS FOR IF YOU KNOW SOME PYTHON AND YOU WANT TO USE MACHINE LEARNING AND DEEP LEARNING, PICK UP THIS BOOK. WHETHER YOU WANT TO START FROM SCRATCH OR EXTEND YOUR MACHINE LEARNING KNOWLEDGE, THIS IS AN ESSENTIAL AND UNMISSABLE RESOURCE. WRITTEN FOR DEVELOPERS AND DATA SCIENTISTS WHO WANT TO CREATE PRACTICAL MACHINE LEARNING AND DEEP LEARNING CODE, THIS BOOK IS IDEAL FOR DEVELOPERS AND DATA SCIENTISTS WHO WANT TO TEACH COMPUTERS HOW TO LEARN FROM DATA. WHAT YOU WILL LEARN UNDERSTAND THE KEY FRAMEWORKS IN DATA SCIENCE, MACHINE LEARNING, AND DEEP LEARNING HARNESS THE POWER OF THE LATEST PYTHON OPEN SOURCE LIBRARIES IN MACHINE LEARNING EXPLORE MACHINE LEARNING TECHNIQUES USING CHALLENGING REAL-WORLD DATA MASTER DEEP NEURAL NETWORK IMPLEMENTATION USING THE TENSORFLOW LIBRARY LEARN THE MECHANICS OF CLASSIFICATION ALGORITHMS TO IMPLEMENT THE BEST TOOL FOR THE JOB PREDICT CONTINUOUS TARGET OUTCOMES USING REGRESSION ANALYSIS UNCOVER HIDDEN PATTERNS AND STRUCTURES IN DATA WITH CLUSTERING DELVE DEEPER INTO TEXTUAL AND SOCIAL MEDIA DATA USING SENTIMENT ANALYSIS IN DETAIL MACHINE LEARNING IS EATING THE SOFTWARE WORLD, AND NOW DEEP LEARNING IS EXTENDING MACHINE LEARNING. UNDERSTAND AND WORK AT THE CUTTING EDGE OF MACHINE LEARNING, NEURAL NETWORKS, AND DEEP LEARNING WITH THIS SECOND EDITION OF SEBASTIAN RASCHKA'S BESTSELLING BOOK, PYTHON MACHINE LEARNING. THOROUGHLY UPDATED USING THE LATEST PYTHON OPEN SOURCE LIBRARIES, THIS BOOK OFFERS THE PRACTICAL KNOWLEDGE AND TECHNIQUES YOU NEED TO

CREATE AND CONTRIBUTE TO MACHINE LEARNING, DEEP LEARNING, AND MODERN DATA ANALYSIS. FULLY EXTENDED AND MODERNIZED, PYTHON MACHINE LEARNING SECOND EDITION NOW INCLUDES THE POPULAR TENSORFLOW DEEP LEARNING LIBRARY. THE SCIKIT-LEARN CODE HAS ALSO BEEN FULLY UPDATED TO INCLUDE RECENT IMPROVEMENTS AND ADDITIONS TO THIS VERSATILE MACHINE LEARNING LIBRARY. SEBASTIAN RASCHKA AND VAHID MIRJALILI'S UNIQUE INSIGHT AND EXPERTISE INTRODUCE YOU TO MACHINE LEARNING AND DEEP LEARNING ALGORITHMS FROM SCRATCH, AND SHOW YOU HOW TO APPLY THEM TO PRACTICAL INDUSTRY CHALLENGES USING REALISTIC AND INTERESTING EXAMPLES. BY THE END OF THE BOOK, YOU'LL BE READY TO MEET THE NEW DATA ANALYSIS OPPORTUNITIES IN TODAY'S WORLD. IF YOU'VE READ THE FIRST EDITION OF THIS BOOK, YOU'LL BE DELIGHTED TO FIND A NEW BALANCE OF CLASSICAL IDEAS AND MODERN INSIGHTS INTO MACHINE LEARNING. EVERY CHAPTER HAS BEEN CRITICALLY UPDATED, AND THERE ARE NEW CHAPTERS ON KEY TECHNOLOGIES. YOU'LL BE ABLE TO LEARN AND WORK WITH TENSORFLOW MORE DEEPLY THAN EVER BEFORE, AND GET ESSENTIAL COVERAGE OF THE KERAS NEURAL NETWORK LIBRARY, ALONG WITH THE MOST RECENT UPDATES TO SCIKIT-LEARN. STYLE AND APPROACH PYTHON MACHINE LEARNING SECOND EDITION TAKES A PRACTICAL, HANDS-ON CODING APPROACH SO YOU CAN LEARN ABOUT MACHINE LEARNING BY CODING WITH PYTHON. THIS BOOK MOVES FLUENTLY BETWEEN THE THEORETICAL PRINCIPLES OF MACHINE LEARNING AND THE PRACTICAL DETAILS OF IMPLEMENTATION WITH PYTHON.

PRACTICAL MACHINE LEARNING WITH PYTHON - DIPANJAN SARKAR 2017-12-20

MASTER THE ESSENTIAL SKILLS NEEDED TO RECOGNIZE AND SOLVE COMPLEX PROBLEMS WITH MACHINE LEARNING AND DEEP LEARNING. USING REAL-WORLD EXAMPLES THAT LEVERAGE THE POPULAR PYTHON MACHINE LEARNING ECOSYSTEM, THIS BOOK IS YOUR PERFECT COMPANION FOR LEARNING THE ART AND SCIENCE OF MACHINE LEARNING TO BECOME A SUCCESSFUL PRACTITIONER. THE CONCEPTS, TECHNIQUES, TOOLS, FRAMEWORKS, AND METHODOLOGIES USED IN THIS BOOK WILL TEACH YOU HOW TO THINK, DESIGN, BUILD, AND EXECUTE MACHINE LEARNING SYSTEMS AND PROJECTS SUCCESSFULLY. PRACTICAL MACHINE LEARNING WITH PYTHON FOLLOWS A STRUCTURED AND COMPREHENSIVE THREE-TIERED APPROACH PACKED WITH HANDS-ON EXAMPLES AND CODE. PART 1 FOCUSES ON UNDERSTANDING MACHINE LEARNING CONCEPTS AND TOOLS. THIS INCLUDES MACHINE LEARNING BASICS WITH A BROAD OVERVIEW OF ALGORITHMS, TECHNIQUES, CONCEPTS AND APPLICATIONS, FOLLOWED BY A TOUR OF THE ENTIRE PYTHON MACHINE LEARNING ECOSYSTEM. BRIEF GUIDES FOR USEFUL MACHINE LEARNING TOOLS, LIBRARIES AND FRAMEWORKS ARE ALSO COVERED. PART 2 DETAILS STANDARD MACHINE LEARNING PIPELINES, WITH AN EMPHASIS ON DATA PROCESSING ANALYSIS, FEATURE ENGINEERING, AND MODELING. YOU WILL LEARN HOW TO PROCESS, WRANGLE, SUMMARIZE AND VISUALIZE DATA IN ITS VARIOUS FORMS. FEATURE ENGINEERING AND SELECTION METHODOLOGIES WILL BE COVERED IN DETAIL WITH REAL-WORLD DATASETS FOLLOWED BY MODEL BUILDING, TUNING, INTERPRETATION AND DEPLOYMENT. PART 3 EXPLORES MULTIPLE REAL-WORLD CASE STUDIES SPANNING DIVERSE DOMAINS AND INDUSTRIES LIKE RETAIL, TRANSPORTATION, MOVIES, MUSIC, MARKETING, COMPUTER VISION AND FINANCE.

FOR EACH CASE STUDY, YOU WILL LEARN THE APPLICATION OF VARIOUS MACHINE LEARNING TECHNIQUES AND METHODS. THE HANDS-ON EXAMPLES WILL HELP YOU BECOME FAMILIAR WITH STATE-OF-THE-ART MACHINE LEARNING TOOLS AND TECHNIQUES AND UNDERSTAND WHAT ALGORITHMS ARE BEST SUITED FOR ANY PROBLEM. PRACTICAL MACHINE LEARNING WITH PYTHON WILL EMPOWER YOU TO START SOLVING YOUR OWN PROBLEMS WITH MACHINE LEARNING TODAY! WHAT YOU'LL LEARN EXECUTE END-TO-END MACHINE LEARNING PROJECTS AND SYSTEMS IMPLEMENT HANDS-ON EXAMPLES WITH INDUSTRY STANDARD, OPEN SOURCE, ROBUST MACHINE LEARNING TOOLS AND FRAMEWORKS REVIEW CASE STUDIES DEPICTING APPLICATIONS OF MACHINE LEARNING AND DEEP LEARNING ON DIVERSE DOMAINS AND INDUSTRIES APPLY A WIDE RANGE OF MACHINE LEARNING MODELS INCLUDING REGRESSION, CLASSIFICATION, AND CLUSTERING. UNDERSTAND AND APPLY THE LATEST MODELS AND METHODOLOGIES FROM DEEP LEARNING INCLUDING CNNs, RNNs, LSTMs AND TRANSFER LEARNING. WHO THIS BOOK IS FOR IT PROFESSIONALS, ANALYSTS, DEVELOPERS, DATA SCIENTISTS, ENGINEERS, GRADUATE STUDENTS

MASTERING COMPUTER VISION WITH TENSORFLOW 2.x - KRISHNENDU KAR 2020-05-15

APPLY NEURAL NETWORK ARCHITECTURES TO BUILD STATE-OF-THE-ART COMPUTER VISION APPLICATIONS USING THE PYTHON PROGRAMMING LANGUAGE KEY FEATURES GAIN A FUNDAMENTAL UNDERSTANDING OF ADVANCED COMPUTER VISION AND NEURAL NETWORK MODELS IN USE TODAY COVER TASKS SUCH AS LOW-LEVEL VISION, IMAGE CLASSIFICATION, AND OBJECT DETECTION DEVELOP DEEP LEARNING MODELS ON CLOUD PLATFORMS AND OPTIMIZE THEM USING TENSORFLOW LITE AND THE OPENVINO TOOLKIT BOOK DESCRIPTION

COMPUTER VISION ALLOWS MACHINES TO GAIN HUMAN-LEVEL UNDERSTANDING TO VISUALIZE, PROCESS, AND ANALYZE IMAGES AND VIDEOS. THIS BOOK FOCUSES ON USING TENSORFLOW TO HELP YOU LEARN ADVANCED COMPUTER VISION TASKS SUCH AS IMAGE ACQUISITION, PROCESSING, AND ANALYSIS. YOU'LL START WITH THE KEY PRINCIPLES OF COMPUTER VISION AND DEEP LEARNING TO BUILD A SOLID FOUNDATION, BEFORE COVERING NEURAL NETWORK ARCHITECTURES AND UNDERSTANDING HOW THEY WORK RATHER THAN USING THEM AS A BLACK BOX. NEXT, YOU'LL EXPLORE ARCHITECTURES SUCH AS VGG, RESNET, INCEPTION, R-CNN, SSD, YOLO, AND MOBILENET. AS YOU ADVANCE, YOU'LL LEARN TO USE VISUAL SEARCH METHODS USING TRANSFER LEARNING. YOU'LL ALSO COVER ADVANCED COMPUTER VISION CONCEPTS SUCH AS SEMANTIC SEGMENTATION, IMAGE INPAINTING WITH GAN'S, OBJECT TRACKING, VIDEO SEGMENTATION, AND ACTION RECOGNITION. LATER, THE BOOK FOCUSES ON HOW MACHINE LEARNING AND DEEP LEARNING CONCEPTS CAN BE USED TO PERFORM TASKS SUCH AS EDGE DETECTION AND FACE RECOGNITION. YOU'LL THEN DISCOVER HOW TO DEVELOP POWERFUL NEURAL NETWORK MODELS ON YOUR PC AND ON VARIOUS CLOUD PLATFORMS. FINALLY, YOU'LL LEARN TO PERFORM MODEL OPTIMIZATION METHODS TO DEPLOY MODELS ON EDGE DEVICES FOR REAL-TIME INFERENCE. BY THE END OF THIS BOOK, YOU'LL HAVE A SOLID UNDERSTANDING OF COMPUTER VISION AND BE ABLE TO CONFIDENTLY DEVELOP MODELS TO AUTOMATE TASKS. WHAT YOU WILL LEARN EXPLORE METHODS OF FEATURE EXTRACTION AND IMAGE RETRIEVAL AND VISUALIZE DIFFERENT LAYERS OF THE

NEURAL NETWORK MODEL USE TENSORFLOW FOR VARIOUS VISUAL SEARCH METHODS FOR REAL-WORLD SCENARIOS BUILD NEURAL NETWORKS OR ADJUST PARAMETERS TO OPTIMIZE THE PERFORMANCE OF MODELS UNDERSTAND TENSORFLOW DEEPLAB TO PERFORM SEMANTIC SEGMENTATION ON IMAGES AND DCGAN FOR IMAGE INPAINTING EVALUATE YOUR MODEL AND OPTIMIZE AND INTEGRATE IT INTO YOUR APPLICATION TO OPERATE AT SCALE GET UP TO SPEED WITH TECHNIQUES FOR PERFORMING MANUAL AND AUTOMATED IMAGE ANNOTATION WHO THIS BOOK IS FOR THIS BOOK IS FOR COMPUTER VISION PROFESSIONALS, IMAGE PROCESSING PROFESSIONALS, MACHINE LEARNING ENGINEERS AND AI DEVELOPERS WHO HAVE SOME KNOWLEDGE OF MACHINE LEARNING AND DEEP LEARNING AND WANT TO BUILD EXPERT-LEVEL COMPUTER VISION APPLICATIONS. IN ADDITION TO FAMILIARITY WITH TENSORFLOW, PYTHON KNOWLEDGE WILL BE REQUIRED TO GET STARTED WITH THIS BOOK.

DEEP LEARNING WITH THEANO - CHRISTOPHER BOUREZ 2017-07-31

DEVELOP DEEP NEURAL NETWORKS IN THEANO WITH PRACTICAL CODE EXAMPLES FOR IMAGE CLASSIFICATION, MACHINE TRANSLATION, REINFORCEMENT AGENTS, OR GENERATIVE MODELS. ABOUT THIS BOOK LEARN THEANO BASICS AND EVALUATE YOUR MATHEMATICAL EXPRESSIONS FASTER AND IN AN EFFICIENT MANNER LEARN THE DESIGN PATTERNS OF DEEP NEURAL ARCHITECTURES TO BUILD EFFICIENT AND POWERFUL NETWORKS ON YOUR DATASETS APPLY YOUR KNOWLEDGE TO CONCRETE FIELDS SUCH AS IMAGE CLASSIFICATION, OBJECT DETECTION, CHATBOTS, MACHINE TRANSLATION, REINFORCEMENT AGENTS, OR GENERATIVE MODELS. WHO THIS BOOK IS FOR THIS BOOK IS INDENTED TO PROVIDE A FULL OVERVIEW OF DEEP LEARNING. FROM THE BEGINNER IN DEEP LEARNING AND ARTIFICIAL INTELLIGENCE, TO THE DATA SCIENTIST WHO WANTS TO BECOME FAMILIAR WITH THEANO AND ITS SUPPORTING LIBRARIES, OR HAVE AN EXTENDED UNDERSTANDING OF DEEP NEURAL NETS. SOME BASIC SKILLS IN PYTHON PROGRAMMING AND COMPUTER SCIENCE WILL HELP, AS WELL AS SKILLS IN ELEMENTARY ALGEBRA AND CALCULUS. WHAT YOU WILL LEARN GET FAMILIAR WITH THEANO AND DEEP LEARNING PROVIDE EXAMPLES IN SUPERVISED, UNSUPERVISED, GENERATIVE, OR REINFORCEMENT LEARNING. DISCOVER THE MAIN PRINCIPLES FOR DESIGNING EFFICIENT DEEP LEARNING NETS: CONVOLUTIONS, RESIDUAL CONNECTIONS, AND RECURRENT CONNECTIONS. USE THEANO ON REAL-WORLD COMPUTER VISION DATASETS, SUCH AS FOR DIGIT CLASSIFICATION AND IMAGE CLASSIFICATION. EXTEND THE USE OF THEANO TO NATURAL LANGUAGE PROCESSING TASKS, FOR CHATBOTS OR MACHINE TRANSLATION COVER ARTIFICIAL INTELLIGENCE-DRIVEN STRATEGIES TO ENABLE A ROBOT TO SOLVE GAMES OR LEARN FROM AN ENVIRONMENT GENERATE SYNTHETIC DATA THAT LOOKS REAL WITH GENERATIVE MODELING BECOME FAMILIAR WITH LASAGNE AND KERAS, TWO FRAMEWORKS BUILT ON TOP OF THEANO IN DETAIL THIS BOOK OFFERS A COMPLETE OVERVIEW OF DEEP LEARNING WITH THEANO, A PYTHON-BASED LIBRARY THAT MAKES OPTIMIZING NUMERICAL EXPRESSIONS AND DEEP LEARNING MODELS EASY ON CPU OR GPU. THE BOOK PROVIDES SOME PRACTICAL CODE EXAMPLES THAT HELP THE BEGINNER UNDERSTAND HOW EASY IT IS TO BUILD COMPLEX NEURAL NETWORKS, WHILE MORE EXPERIMENTED DATA SCIENTISTS WILL APPRECIATE THE REACH OF THE BOOK, ADDRESSING SUPERVISED AND UNSUPERVISED LEARNING, GENERATIVE MODELS,

REINFORCEMENT LEARNING IN THE FIELDS OF IMAGE RECOGNITION, NATURAL LANGUAGE PROCESSING, OR GAME STRATEGY. THE BOOK ALSO DISCUSSES IMAGE RECOGNITION TASKS THAT RANGE FROM SIMPLE DIGIT RECOGNITION, IMAGE CLASSIFICATION, OBJECT LOCALIZATION, IMAGE SEGMENTATION, TO IMAGE CAPTIONING. NATURAL LANGUAGE PROCESSING EXAMPLES INCLUDE TEXT GENERATION, CHATBOTS, MACHINE TRANSLATION, AND QUESTION ANSWERING. THE LAST EXAMPLE DEALS WITH GENERATING RANDOM DATA THAT LOOKS REAL AND SOLVING GAMES SUCH AS IN THE OPEN-AI GYM. AT THE END, THIS BOOK SUMS UP THE BEST -PERFORMING NETS FOR EACH TASK. WHILE EARLY RESEARCH RESULTS WERE BASED ON DEEP STACKS OF NEURAL LAYERS, IN PARTICULAR, CONVOLUTIONAL LAYERS, THE BOOK PRESENTS THE PRINCIPLES THAT IMPROVED THE EFFICIENCY OF THESE ARCHITECTURES, IN ORDER TO HELP THE READER BUILD NEW CUSTOM NETS. STYLE AND APPROACH IT IS AN EASY-TO-FOLLOW EXAMPLE BOOK THAT TEACHES YOU HOW TO PERFORM FAST, EFFICIENT COMPUTATIONS IN PYTHON. STARTING WITH THE VERY BASICS- NUMPY, INSTALLING THEANO, THIS BOOK WILL TAKE YOU TO THE SMOOTH JOURNEY OF IMPLEMENTING THEANO FOR ADVANCED COMPUTATIONS FOR MACHINE LEARNING AND DEEP LEARNING.

MODERN COMPUTER VISION WITH PYTORCH - V KISHORE AYYADEVARA 2020-11-27

GET TO GRIPS WITH DEEP LEARNING TECHNIQUES FOR BUILDING IMAGE PROCESSING APPLICATIONS USING PYTORCH WITH THE HELP OF CODE NOTEBOOKS AND TEST QUESTIONS KEY FEATURESIMPLEMENT SOLUTIONS TO 50 REAL-WORLD COMPUTER VISION APPLICATIONS USING PYTORCHUNDERSTAND THE THEORY AND WORKING MECHANISMS OF NEURAL NETWORK ARCHITECTURES AND THEIR IMPLEMENTATIONDISCOVER BEST PRACTICES USING A CUSTOM LIBRARY CREATED ESPECIALLY FOR THIS BOOKBOOK DESCRIPTION DEEP LEARNING IS THE DRIVING FORCE BEHIND MANY RECENT ADVANCES IN VARIOUS COMPUTER VISION (CV) APPLICATIONS. THIS BOOK TAKES A HANDS-ON APPROACH TO HELP YOU TO SOLVE OVER 50 CV PROBLEMS USING PYTORCH 1.X ON REAL-WORLD DATASETS. YOU'LL START BY BUILDING A NEURAL NETWORK (NN) FROM SCRATCH USING NUMPY AND PYTORCH AND DISCOVER BEST PRACTICES FOR TWEAKING ITS HYPERPARAMETERS. YOU'LL THEN PERFORM IMAGE CLASSIFICATION USING CONVOLUTIONAL NEURAL NETWORKS AND TRANSFER LEARNING AND UNDERSTAND HOW THEY WORK. AS YOU PROGRESS, YOU'LL IMPLEMENT MULTIPLE USE CASES OF 2D AND 3D MULTI-OBJECT DETECTION, SEGMENTATION, HUMAN-POSE-ESTIMATION BY LEARNING ABOUT THE R-CNN FAMILY, SSD, YOLO, U-NET ARCHITECTURES, AND THE DETECTRON2 PLATFORM. THE BOOK WILL ALSO GUIDE YOU IN PERFORMING FACIAL EXPRESSION SWAPPING, GENERATING NEW FACES, AND MANIPULATING FACIAL EXPRESSIONS AS YOU EXPLORE AUTOENCODERS AND MODERN GENERATIVE ADVERSARIAL NETWORKS. YOU'LL LEARN HOW TO COMBINE CV WITH NLP TECHNIQUES, SUCH AS LSTM AND TRANSFORMER, AND RL TECHNIQUES, SUCH AS DEEP Q-LEARNING, TO IMPLEMENT OCR, IMAGE CAPTIONING, OBJECT DETECTION, AND A SELF-DRIVING CAR AGENT. FINALLY, YOU'LL MOVE YOUR NN MODEL TO PRODUCTION ON THE AWS CLOUD. BY THE END OF THIS BOOK, YOU'LL BE ABLE TO LEVERAGE MODERN NN ARCHITECTURES TO SOLVE OVER 50 REAL-WORLD CV PROBLEMS

CONFIDENTLY. WHAT YOU WILL LEARN TRAIN A NN FROM SCRATCH WITH NUMPY AND PYTORCHIMPLEMENT 2D AND 3D MULTI-OBJECT DETECTION AND SEGMENTATIONGENERATE DIGITS AND DEEPFAKES WITH AUTOENCODERS AND ADVANCED GANSMANIPULATE IMAGES USING CYCLEGAN, PIX2PIXGAN, STYLEGAN2, AND SRGANCOMBINE CV WITH NLP TO PERFORM OCR, IMAGE CAPTIONING, AND OBJECT DETECTIONCOMBINE CV WITH REINFORCEMENT LEARNING TO BUILD AGENTS THAT PLAY PONG AND SELF-DRIVE A CARDEPLOY A DEEP LEARNING MODEL ON THE AWS SERVER USING FASTAPI AND DOCKERIMPLEMENT OVER 35 NN ARCHITECTURES AND COMMON OPENCV UTILITIESWHO THIS BOOK IS FOR THIS BOOK IS FOR BEGINNERS TO PYTORCH AND INTERMEDIATE-LEVEL MACHINE LEARNING PRACTITIONERS WHO ARE LOOKING TO GET WELL-VERSED WITH COMPUTER VISION TECHNIQUES USING DEEP LEARNING AND PYTORCH. IF YOU ARE JUST GETTING STARTED WITH NEURAL NETWORKS, YOU'LL FIND THE USE CASES ACCOMPANIED BY NOTEBOOKS IN GITHUB PRESENT IN THIS BOOK USEFUL. BASIC KNOWLEDGE OF THE PYTHON PROGRAMMING LANGUAGE AND MACHINE LEARNING IS ALL YOU NEED TO GET STARTED WITH THIS BOOK.

ARTIFICIAL INTELLIGENCE AND DEEP LEARNING ESSENTIALS - JAMES RUSSELL 2018-05-12
GET TO GRIPS WITH THE ESSENTIALS OF DEEP LEARNING BY LEVERAGING THE POWER OF PYTHONKEY FEATURES YOUR ONE-STOP SOLUTION TO GET STARTED WITH THE ESSENTIALS OF DEEP LEARNING AND NEURAL NETWORK MODELING TRAIN DIFFERENT KINDS OF NEURAL NETWORKS TO TACKLE VARIOUS PROBLEMS IN NATURAL LANGUAGE PROCESSING, COMPUTER VISION, SPEECH RECOGNITION, AND MORE COVERS POPULAR PYTHON LIBRARIES SUCH AS TENSORFLOW, KERAS, AND MORE, ALONG WITH TIPS ON TRAINING, DEPLOYING AND OPTIMIZING YOUR DEEP LEARNING MODELS IN THE BEST POSSIBLE MANNER DEEP LEARNING A TRENDING TOPIC IN THE FIELD OF ARTIFICIAL INTELLIGENCE TODAY AND CAN BE CONSIDERED TO BE AN ADVANCED FORM OF MACHINE LEARNING, WHICH IS QUITE TRICKY TO MASTER. THIS BOOK WILL HELP YOU TAKE YOUR FIRST STEPS IN TRAINING EFFICIENT DEEP LEARNING MODELS AND APPLYING THEM IN VARIOUS PRACTICAL SCENARIOS. YOU WILL MODEL, TRAIN, AND DEPLOY DIFFERENT KINDS OF NEURAL NETWORKS SUCH AS CONVOLUTIONAL NEURAL NETWORK, RECURRENT NEURAL NETWORK, AND WILL SEE SOME OF THEIR APPLICATIONS IN REAL-WORLD DOMAINS INCLUDING COMPUTER VISION, NATURAL LANGUAGE PROCESSING, SPEECH RECOGNITION, AND SO ON. YOU WILL BUILD PRACTICAL PROJECTS SUCH AS CHATBOTS, IMPLEMENT REINFORCEMENT LEARNING TO BUILD SMART GAMES, AND DEVELOP EXPERT SYSTEMS FOR IMAGE CAPTIONING AND PROCESSING. POPULAR PYTHON LIBRARY SUCH AS TENSORFLOW IS USED IN THIS BOOK TO BUILD THE MODELS. THIS BOOK ALSO COVERS SOLUTIONS FOR DIFFERENT PROBLEMS YOU MIGHT COME ACROSS WHILE TRAINING MODELS, SUCH AS NOISY DATASETS, SMALL DATASETS, AND MORE. THIS BOOK DOES NOT ASSUME ANY PRIOR KNOWLEDGE OF DEEP LEARNING. BY THE END OF THIS BOOK, YOU WILL HAVE A FIRM UNDERSTANDING OF THE BASICS OF DEEP LEARNING AND NEURAL NETWORK MODELING, ALONG WITH THEIR PRACTICAL APPLICATIONS.WHAT YOU WILL LEARN GET TO GRIPS WITH THE CORE CONCEPTS OF DEEP LEARNING AND NEURAL NETWORKS SET UP DEEP LEARNING LIBRARY SUCH AS TENSORFLOW FINE-TUNE YOUR DEEP LEARNING MODELS FOR NLP AND COMPUTER

VISION APPLICATIONS UNIFY DIFFERENT INFORMATION SOURCES, SUCH AS IMAGES, TEXT, AND SPEECH THROUGH DEEP LEARNING OPTIMIZE AND FINE-TUNE YOUR DEEP LEARNING MODELS FOR BETTER PERFORMANCE TRAIN A DEEP REINFORCEMENT LEARNING MODEL THAT PLAYS A GAME BETTER THAN HUMANS LEARN HOW TO MAKE YOUR MODELS GET THE BEST OUT OF YOUR GPU OR CPU WHO THIS BOOK IS FOR ASPIRING DATA SCIENTISTS AND MACHINE LEARNING EXPERTS WHO HAVE LIMITED OR NO EXPOSURE TO DEEP LEARNING WILL FIND THIS BOOK TO BE VERY USEFUL. IF YOU ARE LOOKING FOR A RESOURCE THAT GETS YOU UP AND RUNNING WITH THE FUNDAMENTALS OF DEEP LEARNING AND NEURAL NETWORKS, THIS BOOK IS FOR YOU. AS THE MODELS IN THE BOOK ARE TRAINED USING THE POPULAR PYTHON-BASED LIBRARIES SUCH AS TENSORFLOW AND KERAS, IT WOULD BE USEFUL TO HAVE SOUND PROGRAMMING KNOWLEDGE OF PYTHON. TABLE OF CONTENTS 1. WHAT IS ARTIFICIAL INTELLIGENCE 2. WHY IS THE ARTIFICIAL INTELLIGENCE IMPORTANT ? 3. APPLICATIONS OF MACHINE LEARNING 4. SEMANTICS, PROBABILITY AND IA 5. NUMERICAL COMPUTATION 6. SEQUENCE MODELING, RECURRENT AND RECURSIVE NETS 7. AUTOENCODERS 8. MARKOV CHAINS, MONTE CARLO METHODS, AND MACHINE LEARNING

PYTHON DEEP LEARNING - VALENTINO ZOCCA 2017-04-28

TAKE YOUR MACHINE LEARNING SKILLS TO THE NEXT LEVEL BY MASTERING DEEP LEARNING CONCEPTS AND ALGORITHMS USING PYTHON. ABOUT THIS BOOK * EXPLORE AND CREATE INTELLIGENT SYSTEMS USING CUTTING-EDGE DEEP LEARNING TECHNIQUES * IMPLEMENT DEEP LEARNING ALGORITHMS AND WORK WITH REVOLUTIONARY LIBRARIES IN PYTHON * GET REAL-WORLD EXAMPLES AND EASY-TO-FOLLOW TUTORIALS ON THEANO, TENSORFLOW, H2O AND MORE WHO THIS BOOK IS FOR THIS BOOK IS FOR DATA SCIENCE PRACTITIONERS AS WELL AS ASPIRANTS WHO HAVE A BASIC FOUNDATIONAL UNDERSTANDING OF MACHINE LEARNING CONCEPTS AND SOME PROGRAMMING EXPERIENCE WITH PYTHON. A MATHEMATICAL BACKGROUND WITH A CONCEPTUAL UNDERSTANDING OF CALCULUS AND STATISTICS IS ALSO DESIRED. WHAT YOU WILL LEARN * GET A PRACTICAL DEEP DIVE INTO DEEP LEARNING ALGORITHMS * EXPLORE DEEP LEARNING FURTHER WITH THEANO, CAFFE, KERAS, AND TENSORFLOW * LEARN ABOUT TWO OF THE MOST POWERFUL TECHNIQUES AT THE CORE OF MANY PRACTICAL DEEP LEARNING IMPLEMENTATIONS: AUTO-ENCODERS AND RESTRICTED BOLTZMANN MACHINES * DIVE INTO DEEP BELIEF NETS AND DEEP NEURAL NETWORKS * DISCOVER MORE DEEP LEARNING ALGORITHMS WITH DROPOUT AND CONVOLUTIONAL NEURAL NETWORKS * GET TO KNOW DEVICE STRATEGIES SO YOU CAN USE DEEP LEARNING ALGORITHMS AND LIBRARIES IN THE REAL WORLD IN DETAIL WITH AN INCREASING INTEREST IN AI AROUND THE WORLD, DEEP LEARNING HAS ATTRACTED A GREAT DEAL OF PUBLIC ATTENTION. EVERY DAY, DEEP LEARNING ALGORITHMS ARE USED BROADLY ACROSS DIFFERENT INDUSTRIES. THE BOOK WILL GIVE YOU ALL THE PRACTICAL INFORMATION AVAILABLE ON THE SUBJECT, INCLUDING THE BEST PRACTICES, USING REAL-WORLD USE CASES. YOU WILL LEARN TO RECOGNIZE AND EXTRACT INFORMATION TO INCREASE PREDICTIVE ACCURACY AND OPTIMIZE RESULTS. STARTING WITH A QUICK RECAP OF IMPORTANT MACHINE LEARNING CONCEPTS, THE BOOK WILL DELVE STRAIGHT INTO DEEP LEARNING PRINCIPLES USING SCI-KIT

LEARN. MOVING AHEAD, YOU WILL LEARN TO USE THE LATEST OPEN SOURCE LIBRARIES SUCH AS THEANO, KERAS, GOOGLE'S TENSORFLOW, AND H2O. USE THIS GUIDE TO UNCOVER THE DIFFICULTIES OF PATTERN RECOGNITION, SCALING DATA WITH GREATER ACCURACY AND DISCUSSING DEEP LEARNING ALGORITHMS AND TECHNIQUES. WHETHER YOU WANT TO DIVE DEEPER INTO DEEP LEARNING, OR WANT TO INVESTIGATE HOW TO GET MORE OUT OF THIS POWERFUL TECHNOLOGY, YOU'LL FIND EVERYTHING INSIDE. STYLE AND APPROACH PYTHON MACHINE LEARNING BY EXAMPLE FOLLOWS PRACTICAL HANDS ON APPROACH. IT WALKS YOU THROUGH THE KEY ELEMENTS OF PYTHON AND ITS POWERFUL MACHINE LEARNING LIBRARIES WITH THE HELP OF REAL WORLD PROJECTS.

HANDS-ON IMAGE PROCESSING WITH PYTHON - SANDIPAN DEY 2018-11-30

EXPLORE THE MATHEMATICAL COMPUTATIONS AND ALGORITHMS FOR IMAGE PROCESSING USING POPULAR PYTHON TOOLS AND FRAMEWORKS. KEY FEATURES PRACTICAL COVERAGE OF EVERY IMAGE PROCESSING TASK WITH POPULAR PYTHON LIBRARIES INCLUDES TOPICS SUCH AS PSEUDO-COLORING, NOISE SMOOTHING, COMPUTING IMAGE DESCRIPTORS COVERS POPULAR MACHINE LEARNING AND DEEP LEARNING TECHNIQUES FOR COMPLEX IMAGE PROCESSING TASKS BOOK DESCRIPTION IMAGE PROCESSING PLAYS AN IMPORTANT ROLE IN OUR DAILY LIVES WITH VARIOUS APPLICATIONS SUCH AS IN SOCIAL MEDIA (FACE DETECTION), MEDICAL IMAGING (X-RAY, CT-SCAN), SECURITY (FINGERPRINT RECOGNITION) TO ROBOTICS & SPACE. THIS BOOK WILL TOUCH THE CORE OF IMAGE PROCESSING, FROM CONCEPTS TO CODE USING PYTHON. THE BOOK WILL START FROM THE CLASSICAL IMAGE PROCESSING TECHNIQUES AND EXPLORE THE EVOLUTION OF IMAGE PROCESSING ALGORITHMS UP TO THE RECENT ADVANCES IN IMAGE PROCESSING OR COMPUTER VISION WITH DEEP LEARNING. WE WILL LEARN HOW TO USE IMAGE PROCESSING LIBRARIES SUCH AS PIL, SCIKIT-IMAGE, AND SCIPY NDIMAGE IN PYTHON. THIS BOOK WILL ENABLE US TO WRITE CODE SNIPPETS IN PYTHON 3 AND QUICKLY IMPLEMENT COMPLEX IMAGE PROCESSING ALGORITHMS SUCH AS IMAGE ENHANCEMENT, FILTERING, SEGMENTATION, OBJECT DETECTION, AND CLASSIFICATION. WE WILL BE ABLE TO USE MACHINE LEARNING MODELS USING THE SCIKIT-LEARN LIBRARY AND LATER EXPLORE DEEP CNN, SUCH AS VGG-19 WITH KERAS, AND WE WILL ALSO USE AN END-TO-END DEEP LEARNING MODEL CALLED YOLO FOR OBJECT DETECTION. WE WILL ALSO COVER A FEW ADVANCED PROBLEMS, SUCH AS IMAGE INPAINTING, GRADIENT BLENDING, VARIATIONAL DENOISING, SEAM CARVING, QUILTING, AND MORPHING. BY THE END OF THIS BOOK, WE WILL HAVE LEARNED TO IMPLEMENT VARIOUS ALGORITHMS FOR EFFICIENT IMAGE PROCESSING. WHAT YOU WILL LEARN PERFORM BASIC DATA PRE-PROCESSING TASKS SUCH AS IMAGE DENOISING AND SPATIAL FILTERING IN PYTHON IMPLEMENT FAST FOURIER TRANSFORM (FFT) AND FREQUENCY DOMAIN FILTERS (E.G., WEINER) IN PYTHON DO MORPHOLOGICAL IMAGE PROCESSING AND SEGMENT IMAGES WITH DIFFERENT ALGORITHMS LEARN TECHNIQUES TO EXTRACT FEATURES FROM IMAGES AND MATCH IMAGES WRITE PYTHON CODE TO IMPLEMENT SUPERVISED / UNSUPERVISED MACHINE LEARNING ALGORITHMS FOR IMAGE PROCESSING USE DEEP LEARNING MODELS FOR IMAGE CLASSIFICATION, SEGMENTATION, OBJECT DETECTION AND STYLE TRANSFER WHO THIS BOOK IS FOR THIS BOOK IS FOR COMPUTER VISION ENGINEERS,

AND MACHINE LEARNING DEVELOPERS WHO ARE GOOD WITH PYTHON PROGRAMMING AND WANT TO EXPLORE DETAILS AND COMPLEXITIES OF IMAGE PROCESSING. NO PRIOR KNOWLEDGE OF THE IMAGE PROCESSING TECHNIQUES IS EXPECTED.

APPLIED DEEP LEARNING AND COMPUTER VISION FOR SELF-DRIVING CARS - SUMIT RANJAN
2020-08-14

EXPLORE SELF-DRIVING CAR TECHNOLOGY USING DEEP LEARNING AND ARTIFICIAL INTELLIGENCE TECHNIQUES AND LIBRARIES SUCH AS TENSORFLOW, KERAS, AND OPENCV KEY FEATURES BUILD AND TRAIN POWERFUL NEURAL NETWORK MODELS TO BUILD AN AUTONOMOUS CAR IMPLEMENT COMPUTER VISION, DEEP LEARNING, AND AI TECHNIQUES TO CREATE AUTOMOTIVE ALGORITHMS OVERCOME THE CHALLENGES FACED WHILE AUTOMATING DIFFERENT ASPECTS OF DRIVING USING MODERN PYTHON LIBRARIES AND ARCHITECTURES BOOK DESCRIPTION THANKS TO A NUMBER OF RECENT BREAKTHROUGHS, SELF-DRIVING CAR TECHNOLOGY IS NOW AN EMERGING SUBJECT IN THE FIELD OF ARTIFICIAL INTELLIGENCE AND HAS SHIFTED DATA SCIENTISTS' FOCUS TO BUILDING AUTONOMOUS CARS THAT WILL TRANSFORM THE AUTOMOTIVE INDUSTRY. THIS BOOK IS A COMPREHENSIVE GUIDE TO USE DEEP LEARNING AND COMPUTER VISION TECHNIQUES TO DEVELOP AUTONOMOUS CARS. STARTING WITH THE BASICS OF SELF-DRIVING CARS (SDCs), THIS BOOK WILL TAKE YOU THROUGH THE DEEP NEURAL NETWORK TECHNIQUES REQUIRED TO GET UP AND RUNNING WITH BUILDING YOUR AUTONOMOUS VEHICLE. ONCE YOU ARE COMFORTABLE WITH THE BASICS, YOU'LL DELVE INTO ADVANCED COMPUTER VISION TECHNIQUES AND LEARN HOW TO USE DEEP LEARNING METHODS TO PERFORM A VARIETY OF COMPUTER VISION TASKS SUCH AS FINDING LANE LINES, IMPROVING IMAGE CLASSIFICATION, AND SO ON. YOU WILL EXPLORE THE BASIC STRUCTURE AND WORKING OF A SEMANTIC SEGMENTATION MODEL AND GET TO GRIPS WITH DETECTING CARS USING SEMANTIC SEGMENTATION. THE BOOK ALSO COVERS ADVANCED APPLICATIONS SUCH AS BEHAVIOR-CLONING AND VEHICLE DETECTION USING OPENCV, TRANSFER LEARNING, AND DEEP LEARNING METHODOLOGIES TO TRAIN SDCs TO MIMIC HUMAN DRIVING. BY THE END OF THIS BOOK, YOU'LL HAVE LEARNED HOW TO IMPLEMENT A VARIETY OF NEURAL NETWORKS TO DEVELOP YOUR OWN AUTONOMOUS VEHICLE USING MODERN PYTHON LIBRARIES. WHAT YOU WILL LEARN IMPLEMENT DEEP NEURAL NETWORK FROM SCRATCH USING THE KERAS LIBRARY UNDERSTAND THE IMPORTANCE OF DEEP LEARNING IN SELF-DRIVING CARS GET TO GRIPS WITH FEATURE EXTRACTION TECHNIQUES IN IMAGE PROCESSING USING THE OPENCV LIBRARY DESIGN A SOFTWARE PIPELINE THAT DETECTS LANE LINES IN VIDEOS IMPLEMENT A CONVOLUTIONAL NEURAL NETWORK (CNN) IMAGE CLASSIFIER FOR TRAFFIC SIGNAL SIGNS TRAIN AND TEST NEURAL NETWORKS FOR BEHAVIORAL-CLONING BY DRIVING A CAR IN A VIRTUAL SIMULATOR DISCOVER VARIOUS STATE-OF-THE-ART SEMANTIC SEGMENTATION AND OBJECT DETECTION ARCHITECTURES WHO THIS BOOK IS FOR IF YOU ARE A DEEP LEARNING ENGINEER, AI RESEARCHER, OR ANYONE LOOKING TO IMPLEMENT DEEP LEARNING AND COMPUTER VISION TECHNIQUES TO BUILD SELF-DRIVING BLUEPRINT SOLUTIONS, THIS BOOK IS FOR YOU. ANYONE WHO WANTS TO LEARN HOW VARIOUS AUTOMOTIVE-RELATED ALGORITHMS ARE BUILT, WILL ALSO FIND THIS BOOK USEFUL. PYTHON

PROGRAMMING EXPERIENCE, ALONG WITH A BASIC UNDERSTANDING OF DEEP LEARNING, IS NECESSARY TO GET THE MOST OF THIS BOOK.

HANDS-ON TRANSFER LEARNING WITH PYTHON - DIPANJAN SARKAR 2018-08-31
DEEP LEARNING SIMPLIFIED BY TAKING SUPERVISED, UNSUPERVISED, AND REINFORCEMENT LEARNING TO THE NEXT LEVEL USING THE PYTHON ECOSYSTEM KEY FEATURES BUILD DEEP LEARNING MODELS WITH TRANSFER LEARNING PRINCIPLES IN PYTHON IMPLEMENT TRANSFER LEARNING TO SOLVE REAL-WORLD RESEARCH PROBLEMS PERFORM COMPLEX OPERATIONS SUCH AS IMAGE CAPTIONING NEURAL STYLE TRANSFER BOOK DESCRIPTION TRANSFER LEARNING IS A MACHINE LEARNING (ML) TECHNIQUE WHERE KNOWLEDGE GAINED DURING TRAINING A SET OF PROBLEMS CAN BE USED TO SOLVE OTHER SIMILAR PROBLEMS. THE PURPOSE OF THIS BOOK IS TWO-FOLD; FIRSTLY, WE FOCUS ON DETAILED COVERAGE OF DEEP LEARNING (DL) AND TRANSFER LEARNING, COMPARING AND CONTRASTING THE TWO WITH EASY-TO-FOLLOW CONCEPTS AND EXAMPLES. THE SECOND AREA OF FOCUS IS REAL-WORLD EXAMPLES AND RESEARCH PROBLEMS USING TENSORFLOW, KERAS, AND THE PYTHON ECOSYSTEM WITH HANDS-ON EXAMPLES. THE BOOK STARTS WITH THE KEY ESSENTIAL CONCEPTS OF ML AND DL, FOLLOWED BY DEPICTION AND COVERAGE OF IMPORTANT DL ARCHITECTURES SUCH AS CONVOLUTIONAL NEURAL NETWORKS (CNNs), DEEP NEURAL NETWORKS (DNNs), RECURRENT NEURAL NETWORKS (RNNs), LONG SHORT-TERM MEMORY (LSTM), AND CAPSULE NETWORKS. OUR FOCUS THEN SHIFTS TO TRANSFER LEARNING CONCEPTS, SUCH AS MODEL FREEZING, FINE-TUNING, PRE-TRAINED MODELS INCLUDING VGG, INCEPTION, RESNET, AND HOW THESE SYSTEMS PERFORM BETTER THAN DL MODELS WITH PRACTICAL EXAMPLES. IN THE CONCLUDING CHAPTERS, WE WILL FOCUS ON A MULTITUDE OF REAL-WORLD CASE STUDIES AND PROBLEMS ASSOCIATED WITH AREAS SUCH AS COMPUTER VISION, AUDIO ANALYSIS AND NATURAL LANGUAGE PROCESSING (NLP). BY THE END OF THIS BOOK, YOU WILL BE ABLE TO IMPLEMENT BOTH DL AND TRANSFER LEARNING PRINCIPLES IN YOUR OWN SYSTEMS. WHAT YOU WILL LEARN SET UP YOUR OWN DL ENVIRONMENT WITH GRAPHICS PROCESSING UNIT (GPU) AND CLOUD SUPPORT DELVE INTO TRANSFER LEARNING PRINCIPLES WITH ML AND DL MODELS EXPLORE VARIOUS DL ARCHITECTURES, INCLUDING CNN, LSTM, AND CAPSULE NETWORKS LEARN ABOUT DATA AND NETWORK REPRESENTATION AND LOSS FUNCTIONS GET TO GRIPS WITH MODELS AND STRATEGIES IN TRANSFER LEARNING WALK THROUGH POTENTIAL CHALLENGES IN BUILDING COMPLEX TRANSFER LEARNING MODELS FROM SCRATCH EXPLORE REAL-WORLD RESEARCH PROBLEMS RELATED TO COMPUTER VISION AND AUDIO ANALYSIS UNDERSTAND HOW TRANSFER LEARNING CAN BE LEVERAGED IN NLP WHO THIS BOOK IS FOR HANDS-ON TRANSFER LEARNING WITH PYTHON IS FOR DATA SCIENTISTS, MACHINE LEARNING ENGINEERS, ANALYSTS AND DEVELOPERS WITH AN INTEREST IN DATA AND APPLYING STATE-OF-THE-ART TRANSFER LEARNING METHODOLOGIES TO SOLVE TOUGH REAL-WORLD PROBLEMS. BASIC PROFICIENCY IN MACHINE LEARNING AND PYTHON IS REQUIRED.

PRACTICAL MACHINE LEARNING WITH PYTHON - DIPANJAN SARKAR 2017-12-22
MASTER THE ESSENTIAL SKILLS NEEDED TO RECOGNIZE AND SOLVE COMPLEX PROBLEMS WITH

MACHINE LEARNING AND DEEP LEARNING. USING REAL-WORLD EXAMPLES THAT LEVERAGE THE POPULAR PYTHON MACHINE LEARNING ECOSYSTEM, THIS BOOK IS YOUR PERFECT COMPANION FOR LEARNING THE ART AND SCIENCE OF MACHINE LEARNING TO BECOME A SUCCESSFUL PRACTITIONER. THE CONCEPTS, TECHNIQUES, TOOLS, FRAMEWORKS, AND METHODOLOGIES USED IN THIS BOOK WILL TEACH YOU HOW TO THINK, DESIGN, BUILD, AND EXECUTE MACHINE LEARNING SYSTEMS AND PROJECTS SUCCESSFULLY. PRACTICAL MACHINE LEARNING WITH PYTHON FOLLOWS A STRUCTURED AND COMPREHENSIVE THREE-TIERED APPROACH PACKED WITH HANDS-ON EXAMPLES AND CODE. PART 1 FOCUSES ON UNDERSTANDING MACHINE LEARNING CONCEPTS AND TOOLS. THIS INCLUDES MACHINE LEARNING BASICS WITH A BROAD OVERVIEW OF ALGORITHMS, TECHNIQUES, CONCEPTS AND APPLICATIONS, FOLLOWED BY A TOUR OF THE ENTIRE PYTHON MACHINE LEARNING ECOSYSTEM. BRIEF GUIDES FOR USEFUL MACHINE LEARNING TOOLS, LIBRARIES AND FRAMEWORKS ARE ALSO COVERED. PART 2 DETAILS STANDARD MACHINE LEARNING PIPELINES, WITH AN EMPHASIS ON DATA PROCESSING ANALYSIS, FEATURE ENGINEERING, AND MODELING. YOU WILL LEARN HOW TO PROCESS, WRANGLE, SUMMARIZE AND VISUALIZE DATA IN ITS VARIOUS FORMS. FEATURE ENGINEERING AND SELECTION METHODOLOGIES WILL BE COVERED IN DETAIL WITH REAL-WORLD DATASETS FOLLOWED BY MODEL BUILDING, TUNING, INTERPRETATION AND DEPLOYMENT. PART 3 EXPLORES MULTIPLE REAL-WORLD CASE STUDIES SPANNING DIVERSE DOMAINS AND INDUSTRIES LIKE RETAIL, TRANSPORTATION, MOVIES, MUSIC, MARKETING, COMPUTER VISION AND FINANCE. FOR EACH CASE STUDY, YOU WILL LEARN THE APPLICATION OF VARIOUS MACHINE LEARNING TECHNIQUES AND METHODS. THE HANDS-ON EXAMPLES WILL HELP YOU BECOME FAMILIAR WITH STATE-OF-THE-ART MACHINE LEARNING TOOLS AND TECHNIQUES AND UNDERSTAND WHAT ALGORITHMS ARE BEST SUITED FOR ANY PROBLEM. PRACTICAL MACHINE LEARNING WITH PYTHON WILL EMPOWER YOU TO START SOLVING YOUR OWN PROBLEMS WITH MACHINE LEARNING TODAY! WHAT YOU'LL LEARN EXECUTE END-TO-END MACHINE LEARNING PROJECTS AND SYSTEMS IMPLEMENT HANDS-ON EXAMPLES WITH INDUSTRY STANDARD, OPEN SOURCE, ROBUST MACHINE LEARNING TOOLS AND FRAMEWORKS REVIEW CASE STUDIES DEPICTING APPLICATIONS OF MACHINE LEARNING AND DEEP LEARNING ON DIVERSE DOMAINS AND INDUSTRIES APPLY A WIDE RANGE OF MACHINE LEARNING MODELS INCLUDING REGRESSION, CLASSIFICATION, AND CLUSTERING. UNDERSTAND AND APPLY THE LATEST MODELS AND METHODOLOGIES FROM DEEP LEARNING INCLUDING CNNs, RNNs, LSTMs AND TRANSFER LEARNING. WHO THIS BOOK IS FOR IT PROFESSIONALS, ANALYSTS, DEVELOPERS, DATA SCIENTISTS, ENGINEERS, GRADUATE STUDENTS

DEEP LEARNING ESSENTIALS - ANURAG BHARDWAJ 2018-01-30
GET TO GRIPS WITH THE ESSENTIALS OF DEEP LEARNING BY LEVERAGING THE POWER OF PYTHON KEY FEATURES YOUR ONE-STOP SOLUTION TO GET STARTED WITH THE ESSENTIALS OF DEEP LEARNING AND NEURAL NETWORK MODELING TRAIN DIFFERENT KINDS OF NEURAL NETWORKS TO TACKLE VARIOUS PROBLEMS IN NATURAL LANGUAGE PROCESSING, COMPUTER VISION, SPEECH RECOGNITION, AND MORE COVERS POPULAR PYTHON LIBRARIES SUCH AS TENSORFLOW, KERAS, AND MORE, ALONG WITH TIPS ON TRAINING, DEPLOYING AND

OPTIMIZING YOUR DEEP LEARNING MODELS IN THE BEST POSSIBLE MANNER BOOK DESCRIPTION DEEP LEARNING A TRENDING TOPIC IN THE FIELD OF ARTIFICIAL INTELLIGENCE TODAY AND CAN BE CONSIDERED TO BE AN ADVANCED FORM OF MACHINE LEARNING, WHICH IS QUITE TRICKY TO MASTER. THIS BOOK WILL HELP YOU TAKE YOUR FIRST STEPS IN TRAINING EFFICIENT DEEP LEARNING MODELS AND APPLYING THEM IN VARIOUS PRACTICAL SCENARIOS. YOU WILL MODEL, TRAIN, AND DEPLOY DIFFERENT KINDS OF NEURAL NETWORKS SUCH AS CONVOLUTIONAL NEURAL NETWORK, RECURRENT NEURAL NETWORK, AND WILL SEE SOME OF THEIR APPLICATIONS IN REAL-WORLD DOMAINS INCLUDING COMPUTER VISION, NATURAL LANGUAGE PROCESSING, SPEECH RECOGNITION, AND SO ON. YOU WILL BUILD PRACTICAL PROJECTS SUCH AS CHATBOTS, IMPLEMENT REINFORCEMENT LEARNING TO BUILD SMART GAMES, AND DEVELOP EXPERT SYSTEMS FOR IMAGE CAPTIONING AND PROCESSING. POPULAR PYTHON LIBRARY SUCH AS TENSORFLOW IS USED IN THIS BOOK TO BUILD THE MODELS. THIS BOOK ALSO COVERS SOLUTIONS FOR DIFFERENT PROBLEMS YOU MIGHT COME ACROSS WHILE TRAINING MODELS, SUCH AS NOISY DATASETS, SMALL DATASETS, AND MORE. THIS BOOK DOES NOT ASSUME ANY PRIOR KNOWLEDGE OF DEEP LEARNING. BY THE END OF THIS BOOK, YOU WILL HAVE A FIRM UNDERSTANDING OF THE BASICS OF DEEP LEARNING AND NEURAL NETWORK MODELING, ALONG WITH THEIR PRACTICAL APPLICATIONS. WHAT YOU WILL LEARN GET TO GRIPS WITH THE CORE CONCEPTS OF DEEP LEARNING AND NEURAL NETWORKS SET UP DEEP LEARNING LIBRARY SUCH AS TENSORFLOW FINE-TUNE YOUR DEEP LEARNING MODELS FOR NLP AND COMPUTER VISION APPLICATIONS UNIFY DIFFERENT INFORMATION SOURCES, SUCH AS IMAGES, TEXT, AND SPEECH THROUGH DEEP LEARNING OPTIMIZE AND FINE-TUNE YOUR DEEP LEARNING MODELS FOR BETTER PERFORMANCE TRAIN A DEEP REINFORCEMENT LEARNING MODEL THAT PLAYS A GAME BETTER THAN HUMANS LEARN HOW TO MAKE YOUR MODELS GET THE BEST OUT OF YOUR GPU OR CPU WHO THIS BOOK IS FOR ASPIRING DATA SCIENTISTS AND MACHINE LEARNING EXPERTS WHO HAVE LIMITED OR NO EXPOSURE TO DEEP LEARNING WILL FIND THIS BOOK TO BE VERY USEFUL. IF YOU ARE LOOKING FOR A RESOURCE THAT GETS YOU UP AND RUNNING WITH THE FUNDAMENTALS OF DEEP LEARNING AND NEURAL NETWORKS, THIS BOOK IS FOR YOU. AS THE MODELS IN THE BOOK ARE TRAINED USING THE POPULAR PYTHON-BASED LIBRARIES SUCH AS TENSORFLOW AND KERAS, IT WOULD BE USEFUL TO HAVE SOUND PROGRAMMING KNOWLEDGE OF PYTHON.

PYTHON IMAGE PROCESSING COOKBOOK - SANDIPAN DEY 2020-04-17
EXPLORE KERAS, SCIKIT-IMAGE, OPEN SOURCE COMPUTER VISION (OPENCV), MATPLOTLIB, AND A WIDE RANGE OF OTHER PYTHON TOOLS AND FRAMEWORKS TO SOLVE REAL-WORLD IMAGE PROCESSING PROBLEMS KEY FEATURES DISCOVER SOLUTIONS TO COMPLEX IMAGE PROCESSING TASKS USING PYTHON TOOLS SUCH AS SCIKIT-IMAGE AND KERAS LEARN POPULAR CONCEPTS SUCH AS MACHINE LEARNING, DEEP LEARNING, AND NEURAL NETWORKS FOR IMAGE PROCESSING EXPLORE COMMON AND NOT-SO-COMMON CHALLENGES FACED IN IMAGE PROCESSING BOOK DESCRIPTION WITH THE ADVANCEMENTS IN WIRELESS DEVICES AND MOBILE TECHNOLOGY, THERE'S INCREASING DEMAND FOR PEOPLE WITH DIGITAL IMAGE PROCESSING SKILLS IN ORDER TO EXTRACT USEFUL INFORMATION FROM THE EVER-GROWING VOLUME OF

IMAGES. THIS BOOK PROVIDES COMPREHENSIVE COVERAGE OF THE RELEVANT TOOLS AND ALGORITHMS, AND GUIDES YOU THROUGH ANALYSIS AND VISUALIZATION FOR IMAGE PROCESSING. WITH THE HELP OF OVER 60 CUTTING-EDGE RECIPES, YOU'LL ADDRESS COMMON CHALLENGES IN IMAGE PROCESSING AND LEARN HOW TO PERFORM COMPLEX TASKS SUCH AS OBJECT DETECTION, IMAGE SEGMENTATION, AND IMAGE RECONSTRUCTION USING LARGE HYBRID DATASETS. DEDICATED SECTIONS WILL ALSO TAKE YOU THROUGH IMPLEMENTING VARIOUS IMAGE ENHANCEMENT AND IMAGE RESTORATION TECHNIQUES, SUCH AS CARTOONING, GRADIENT BLENDING, AND SPARSE DICTIONARY LEARNING. AS YOU ADVANCE, YOU'LL GET TO GRIPS WITH FACE MORPHING AND IMAGE SEGMENTATION TECHNIQUES. WITH AN EMPHASIS ON PRACTICAL SOLUTIONS, THIS BOOK WILL HELP YOU APPLY DEEP LEARNING TECHNIQUES SUCH AS TRANSFER LEARNING AND FINE-TUNING TO SOLVE REAL-WORLD PROBLEMS. BY THE END OF THIS BOOK, YOU'LL BE PROFICIENT IN UTILIZING THE CAPABILITIES OF THE PYTHON ECOSYSTEM TO IMPLEMENT VARIOUS IMAGE PROCESSING TECHNIQUES EFFECTIVELY. WHAT YOU WILL LEARN

IMPLEMENT SUPERVISED AND UNSUPERVISED MACHINE LEARNING ALGORITHMS FOR IMAGE PROCESSING
USE DEEP NEURAL NETWORK MODELS FOR ADVANCED IMAGE PROCESSING TASKS
PERFORM IMAGE CLASSIFICATION, OBJECT DETECTION, AND FACE RECOGNITION
APPLY IMAGE SEGMENTATION AND REGISTRATION TECHNIQUES ON MEDICAL IMAGES TO ASSIST DOCTORS
USE CLASSICAL IMAGE PROCESSING AND DEEP LEARNING METHODS FOR IMAGE RESTORATION
IMPLEMENT TEXT DETECTION IN IMAGES USING TESSERACT, THE OPTICAL CHARACTER RECOGNITION (OCR) ENGINE
UNDERSTAND IMAGE ENHANCEMENT TECHNIQUES SUCH AS GRADIENT BLENDING

WHO THIS BOOK IS FOR THIS BOOK IS FOR IMAGE PROCESSING ENGINEERS, COMPUTER VISION ENGINEERS, SOFTWARE DEVELOPERS, MACHINE LEARNING ENGINEERS, OR ANYONE WHO WANTS TO BECOME WELL-VERSED WITH IMAGE PROCESSING TECHNIQUES AND METHODS USING A RECIPE-BASED APPROACH. ALTHOUGH NO IMAGE PROCESSING KNOWLEDGE IS EXPECTED, PRIOR PYTHON CODING EXPERIENCE IS NECESSARY TO UNDERSTAND KEY CONCEPTS COVERED IN THE BOOK.

NEURAL NETWORK PROJECTS WITH PYTHON - JAMES LOY 2019-02-28

BUILD YOUR MACHINE LEARNING PORTFOLIO BY CREATING 6 CUTTING-EDGE ARTIFICIAL INTELLIGENCE PROJECTS USING NEURAL NETWORKS IN PYTHON KEY FEATURES
DISCOVER NEURAL NETWORK ARCHITECTURES (LIKE CNN AND LSTM) THAT ARE DRIVING RECENT ADVANCEMENTS IN AI
BUILD EXPERT NEURAL NETWORKS IN PYTHON USING POPULAR LIBRARIES SUCH AS KERAS
INCLUDES PROJECTS SUCH AS OBJECT DETECTION, FACE IDENTIFICATION, SENTIMENT ANALYSIS, AND MORE

BOOK DESCRIPTION NEURAL NETWORKS ARE AT THE CORE OF RECENT AI ADVANCES, PROVIDING SOME OF THE BEST RESOLUTIONS TO MANY REAL-WORLD PROBLEMS, INCLUDING IMAGE RECOGNITION, MEDICAL DIAGNOSIS, TEXT ANALYSIS, AND MORE. THIS BOOK GOES THROUGH SOME BASIC NEURAL NETWORK AND DEEP LEARNING CONCEPTS, AS WELL AS SOME POPULAR LIBRARIES IN PYTHON FOR IMPLEMENTING THEM. IT CONTAINS PRACTICAL DEMONSTRATIONS OF NEURAL NETWORKS IN DOMAINS SUCH AS FARE PREDICTION, IMAGE CLASSIFICATION, SENTIMENT ANALYSIS, AND MORE. IN EACH CASE, THE BOOK PROVIDES A PROBLEM STATEMENT, THE SPECIFIC NEURAL NETWORK ARCHITECTURE REQUIRED TO TACKLE

THAT PROBLEM, THE REASONING BEHIND THE ALGORITHM USED, AND THE ASSOCIATED PYTHON CODE TO IMPLEMENT THE SOLUTION FROM SCRATCH. IN THE PROCESS, YOU WILL GAIN HANDS-ON EXPERIENCE WITH USING POPULAR PYTHON LIBRARIES SUCH AS KERAS TO BUILD AND TRAIN YOUR OWN NEURAL NETWORKS FROM SCRATCH. BY THE END OF THIS BOOK, YOU WILL HAVE MASTERED THE DIFFERENT NEURAL NETWORK ARCHITECTURES AND CREATED CUTTING-EDGE AI PROJECTS IN PYTHON THAT WILL IMMEDIATELY STRENGTHEN YOUR MACHINE LEARNING PORTFOLIO. WHAT YOU WILL LEARN

LEARN VARIOUS NEURAL NETWORK ARCHITECTURES AND ITS ADVANCEMENTS IN AI
MASTER DEEP LEARNING IN PYTHON BY BUILDING AND TRAINING NEURAL NETWORKS
MASTER NEURAL NETWORKS FOR REGRESSION AND CLASSIFICATION
DISCOVER CONVOLUTIONAL NEURAL NETWORKS FOR IMAGE RECOGNITION
LEARN SENTIMENT ANALYSIS ON TEXTUAL DATA USING LONG SHORT-TERM MEMORY
BUILD AND TRAIN A HIGHLY ACCURATE FACIAL RECOGNITION SECURITY SYSTEM

WHO THIS BOOK IS FOR THIS BOOK IS A PERFECT MATCH FOR DATA SCIENTISTS, MACHINE LEARNING ENGINEERS, AND DEEP LEARNING ENTHUSIASTS WHO WISH TO CREATE PRACTICAL NEURAL NETWORK PROJECTS IN PYTHON. READERS SHOULD ALREADY HAVE SOME BASIC KNOWLEDGE OF MACHINE LEARNING AND NEURAL NETWORKS.

HANDS-ON REINFORCEMENT LEARNING WITH PYTHON - SUDHARSAN RAVICHANDIRAN 2018-06-28

REINFORCEMENT LEARNING IS A SELF-EVOLVING TYPE OF MACHINE LEARNING THAT TAKES US CLOSER TO ACHIEVING TRUE ARTIFICIAL INTELLIGENCE. THIS EASY-TO-FOLLOW GUIDE EXPLAINS EVERYTHING FROM SCRATCH USING RICH EXAMPLES WRITTEN IN PYTHON.

HANDS-ON COMPUTER VISION WITH TENSORFLOW 2 - BENJAMIN PLANCHE 2019-05-30

A PRACTICAL GUIDE TO BUILDING HIGH PERFORMANCE SYSTEMS FOR OBJECT DETECTION, SEGMENTATION, VIDEO PROCESSING, SMARTPHONE APPLICATIONS, AND MORE KEY FEATURES
DISCOVER HOW TO BUILD, TRAIN, AND SERVE YOUR OWN DEEP NEURAL NETWORKS WITH TENSORFLOW 2 AND KERAS
APPLY MODERN SOLUTIONS TO A WIDE RANGE OF APPLICATIONS SUCH AS OBJECT DETECTION AND VIDEO ANALYSIS
LEARN HOW TO RUN YOUR MODELS ON MOBILE DEVICES AND WEB PAGES AND IMPROVE THEIR PERFORMANCE

BOOK DESCRIPTION COMPUTER VISION SOLUTIONS ARE BECOMING INCREASINGLY COMMON, MAKING THEIR WAY INTO FIELDS SUCH AS HEALTH, AUTOMOBILE, SOCIAL MEDIA, AND ROBOTICS. THIS BOOK WILL HELP YOU EXPLORE TENSORFLOW 2, THE BRAND NEW VERSION OF GOOGLE'S OPEN SOURCE FRAMEWORK FOR MACHINE LEARNING. YOU WILL UNDERSTAND HOW TO BENEFIT FROM USING CONVOLUTIONAL NEURAL NETWORKS (CNNs) FOR VISUAL TASKS. HANDS-ON COMPUTER VISION WITH TENSORFLOW 2 STARTS WITH THE FUNDAMENTALS OF COMPUTER VISION AND DEEP LEARNING, TEACHING YOU HOW TO BUILD A NEURAL NETWORK FROM SCRATCH. YOU WILL DISCOVER THE FEATURES THAT HAVE MADE TENSORFLOW THE MOST WIDELY USED AI LIBRARY, ALONG WITH ITS INTUITIVE KERAS INTERFACE. YOU'LL THEN MOVE ON TO BUILDING, TRAINING, AND DEPLOYING CNNs EFFICIENTLY. COMPLETE WITH CONCRETE CODE EXAMPLES, THE BOOK DEMONSTRATES HOW TO CLASSIFY IMAGES WITH MODERN SOLUTIONS, SUCH AS INCEPTION AND RESNET, AND EXTRACT SPECIFIC CONTENT USING YOU

ONLY LOOK ONCE (YOLO), MASK R-CNN, AND U-NET. YOU WILL ALSO BUILD GENERATIVE ADVERSARIAL NETWORKS (GANs) AND VARIATIONAL AUTOENCODERS (VAEs) TO CREATE AND EDIT IMAGES, AND LONG SHORT-TERM MEMORY NETWORKS (LSTMs) TO ANALYZE VIDEOS. IN THE PROCESS, YOU WILL ACQUIRE ADVANCED INSIGHTS INTO TRANSFER LEARNING, DATA AUGMENTATION, DOMAIN ADAPTATION, AND MOBILE AND WEB DEPLOYMENT, AMONG OTHER KEY CONCEPTS. BY THE END OF THE BOOK, YOU WILL HAVE BOTH THE THEORETICAL UNDERSTANDING AND PRACTICAL SKILLS TO SOLVE ADVANCED COMPUTER VISION PROBLEMS WITH TENSORFLOW 2.0. WHAT YOU WILL LEARN

CREATE YOUR OWN NEURAL NETWORKS FROM SCRATCH
 CLASSIFY IMAGES WITH MODERN ARCHITECTURES INCLUDING INCEPTION AND RESNET
 DETECT AND SEGMENT OBJECTS IN IMAGES WITH YOLO, MASK R-CNN, AND U-NET
 TACKLE PROBLEMS FACED WHEN DEVELOPING SELF-DRIVING CARS AND FACIAL EMOTION RECOGNITION SYSTEMS
 BOOST YOUR APPLICATION'S PERFORMANCE WITH TRANSFER LEARNING, GANs, AND DOMAIN ADAPTATION
 USE RECURRENT NEURAL NETWORKS (RNNs) FOR VIDEO ANALYSIS
 OPTIMIZE AND DEPLOY YOUR NETWORKS ON MOBILE DEVICES AND IN THE BROWSER

WHO THIS BOOK IS FOR
 IF YOU'RE NEW TO DEEP LEARNING AND HAVE SOME BACKGROUND IN PYTHON PROGRAMMING AND IMAGE PROCESSING, LIKE READING/WRITING IMAGE FILES AND EDITING PIXELS, THIS BOOK IS FOR YOU. EVEN IF YOU'RE AN EXPERT
 CURIOUS ABOUT THE NEW TENSORFLOW 2 FEATURES, YOU'LL FIND THIS BOOK USEFUL. WHILE SOME THEORETICAL CONCEPTS REQUIRE KNOWLEDGE OF ALGEBRA AND CALCULUS, THE BOOK COVERS CONCRETE EXAMPLES FOCUSED ON PRACTICAL APPLICATIONS SUCH AS VISUAL RECOGNITION FOR SELF-DRIVING CARS AND SMARTPHONE APPS.

DEEP LEARNING WITH PYTHON, SECOND EDITION - FRANCOIS CHOLLET 2021-12-07
 UNLOCK THE GROUNDBREAKING ADVANCES OF DEEP LEARNING WITH THIS EXTENSIVELY REVISED EDITION OF THE BESTSELLING ORIGINAL. LEARN DIRECTLY FROM THE CREATOR OF KERAS AND MASTER PRACTICAL PYTHON DEEP LEARNING TECHNIQUES THAT ARE EASY TO APPLY IN THE REAL WORLD. IN DEEP LEARNING WITH PYTHON, SECOND EDITION YOU WILL LEARN: DEEP LEARNING FROM FIRST PRINCIPLES
 IMAGE CLASSIFICATION & IMAGE SEGMENTATION
 TIMESERIES FORECASTING
 TEXT CLASSIFICATION AND MACHINE TRANSLATION
 TEXT GENERATION, NEURAL STYLE TRANSFER, AND IMAGE GENERATION

DEEP LEARNING WITH PYTHON HAS TAUGHT THOUSANDS OF READERS HOW TO PUT THE FULL CAPABILITIES OF DEEP LEARNING INTO ACTION. THIS EXTENSIVELY REVISED SECOND EDITION INTRODUCES DEEP LEARNING USING PYTHON AND KERAS, AND IS LOADED WITH INSIGHTS FOR BOTH NOVICE AND EXPERIENCED ML PRACTITIONERS. YOU'LL LEARN PRACTICAL TECHNIQUES THAT ARE EASY TO APPLY IN THE REAL WORLD, AND IMPORTANT THEORY FOR PERFECTING NEURAL NETWORKS. PURCHASE OF THE PRINT BOOK INCLUDES A FREE eBook IN PDF, KINDLE, AND EPUB FORMATS FROM MANNING PUBLICATIONS.

ABOUT THE TECHNOLOGY
 RECENT INNOVATIONS IN DEEP LEARNING UNLOCK EXCITING NEW SOFTWARE CAPABILITIES LIKE AUTOMATED LANGUAGE TRANSLATION, IMAGE RECOGNITION, AND MORE. DEEP LEARNING IS BECOMING ESSENTIAL KNOWLEDGE FOR EVERY SOFTWARE DEVELOPER, AND MODERN TOOLS LIKE KERAS AND TENSORFLOW PUT IT WITHIN YOUR REACH, EVEN IF YOU HAVE NO BACKGROUND IN MATHEMATICS OR DATA SCIENCE.

ABOUT THE BOOK
 DEEP LEARNING WITH PYTHON, SECOND EDITION INTRODUCES THE FIELD OF DEEP LEARNING USING PYTHON AND THE POWERFUL KERAS LIBRARY. IN THIS NEW EDITION, KERAS CREATOR FRANÇOIS CHOLLET OFFERS INSIGHTS FOR BOTH NOVICE AND EXPERIENCED MACHINE LEARNING PRACTITIONERS. AS YOU MOVE THROUGH THIS BOOK, YOU'LL BUILD YOUR UNDERSTANDING THROUGH INTUITIVE EXPLANATIONS, CRISP ILLUSTRATIONS, AND CLEAR EXAMPLES. YOU'LL PICK UP THE SKILLS TO START DEVELOPING DEEP-LEARNING APPLICATIONS.

WHAT'S INSIDE
 DEEP LEARNING FROM FIRST PRINCIPLES
 IMAGE CLASSIFICATION AND IMAGE SEGMENTATION
 TIME SERIES FORECASTING
 TEXT CLASSIFICATION AND MACHINE TRANSLATION
 TEXT GENERATION, NEURAL STYLE TRANSFER, AND IMAGE GENERATION

ABOUT THE READER
 FOR READERS WITH INTERMEDIATE PYTHON SKILLS. NO PREVIOUS EXPERIENCE WITH KERAS, TENSORFLOW, OR MACHINE LEARNING IS REQUIRED.

ABOUT THE AUTHOR
 FRANÇOIS CHOLLET IS A SOFTWARE ENGINEER AT GOOGLE AND CREATOR OF THE KERAS DEEP-LEARNING LIBRARY.

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 1 WHAT IS DEEP LEARNING?
 2 THE MATHEMATICAL BUILDING BLOCKS OF NEURAL NETWORKS
 3 INTRODUCTION TO KERAS AND TENSORFLOW
 4 GETTING STARTED WITH NEURAL NETWORKS: CLASSIFICATION AND REGRESSION
 5 FUNDAMENTALS OF MACHINE LEARNING
 6 THE UNIVERSAL WORKFLOW OF MACHINE LEARNING
 7 WORKING WITH KERAS: A DEEP DIVE
 8 INTRODUCTION TO DEEP LEARNING FOR COMPUTER VISION
 9 ADVANCED DEEP LEARNING FOR COMPUTER VISION
 10 DEEP LEARNING FOR TIMESERIES
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 12 GENERATIVE DEEP LEARNING
 13 BEST PRACTICES FOR THE REAL WORLD
 14 CONCLUSIONS

DEEP LEARNING FOR COMPUTER VISION WITH PYTHON - ADRIAN ROSEBROCK 2017
 "IMAGENET BUNDLE: THE COMPLETE DEEP LEARNING FOR COMPUTER VISION EXPERIENCE. IN THIS BUNDLE, I DEMONSTRATE HOW TO TRAIN LARGE-SCALE NEURAL NETWORKS ON THE MASSIVE IMAGENET DATASET. YOU JUST CAN'T BEAT THIS BUNDLE IF YOU WANT TO MASTER DEEP LEARNING FOR COMPUTER VISION." [TROUVÉ SUR LA PAGE DE L'AUTEUR].

DEEP LEARNING WITH TENSORFLOW - GIANCARLO ZACCONE 2018-03-30
 DELVE INTO NEURAL NETWORKS, IMPLEMENT DEEP LEARNING ALGORITHMS, AND EXPLORE LAYERS OF DATA ABSTRACTION WITH THE HELP OF TENSORFLOW. KEY FEATURES
 LEARN HOW TO IMPLEMENT ADVANCED TECHNIQUES IN DEEP LEARNING WITH GOOGLE'S BRAINCHILD, TENSORFLOW
 EXPLORE DEEP NEURAL NETWORKS AND LAYERS OF DATA ABSTRACTION WITH THE HELP OF THIS COMPREHENSIVE GUIDE
 GAIN REAL-WORLD CONTEXTUALIZATION THROUGH SOME DEEP LEARNING PROBLEMS CONCERNING RESEARCH AND APPLICATION

BOOK DESCRIPTION
 DEEP LEARNING IS A BRANCH OF MACHINE LEARNING ALGORITHMS BASED ON LEARNING MULTIPLE LEVELS OF ABSTRACTION. NEURAL NETWORKS, WHICH ARE AT THE CORE OF DEEP LEARNING, ARE BEING USED IN PREDICTIVE ANALYTICS, COMPUTER VISION, NATURAL LANGUAGE PROCESSING, TIME SERIES FORECASTING, AND TO PERFORM A MYRIAD OF OTHER COMPLEX TASKS. THIS BOOK IS CONCEIVED FOR DEVELOPERS, DATA ANALYSTS, MACHINE LEARNING PRACTITIONERS AND DEEP LEARNING ENTHUSIASTS WHO WANT TO BUILD POWERFUL, ROBUST, AND ACCURATE PREDICTIVE MODELS WITH THE POWER OF TENSORFLOW, COMBINED WITH OTHER OPEN SOURCE PYTHON LIBRARIES. THROUGHOUT THE BOOK, YOU'LL LEARN HOW TO

DEVELOP DEEP LEARNING APPLICATIONS FOR MACHINE LEARNING SYSTEMS USING FEEDFORWARD NEURAL NETWORKS, CONVOLUTIONAL NEURAL NETWORKS, RECURRENT NEURAL NETWORKS, AUTOENCODERS, AND FACTORIZATION MACHINES. DISCOVER HOW TO ATTAIN DEEP LEARNING PROGRAMMING ON GPU IN A DISTRIBUTED WAY. YOU'LL COME AWAY WITH AN IN-DEPTH KNOWLEDGE OF MACHINE LEARNING TECHNIQUES AND THE SKILLS TO APPLY THEM TO REAL-WORLD PROJECTS. WHAT YOU WILL LEARN APPLY DEEP MACHINE INTELLIGENCE AND GPU COMPUTING WITH TENSORFLOW ACCESS PUBLIC DATASETS AND USE TENSORFLOW TO LOAD, PROCESS, AND TRANSFORM THE DATA DISCOVER HOW TO USE THE HIGH-LEVEL TENSORFLOW API TO BUILD MORE POWERFUL APPLICATIONS USE DEEP LEARNING FOR SCALABLE OBJECT DETECTION AND MOBILE COMPUTING TRAIN MACHINES QUICKLY TO LEARN FROM DATA BY EXPLORING REINFORCEMENT LEARNING TECHNIQUES EXPLORE ACTIVE AREAS OF DEEP LEARNING RESEARCH AND APPLICATIONS WHO THIS BOOK IS FOR THE BOOK IS FOR PEOPLE INTERESTED IN MACHINE LEARNING AND MACHINE INTELLIGENCE. A RUDIMENTARY LEVEL OF PROGRAMMING IN ONE LANGUAGE IS ASSUMED, AS IS A BASIC FAMILIARITY WITH COMPUTER SCIENCE TECHNIQUES AND TECHNOLOGIES, INCLUDING A BASIC AWARENESS OF COMPUTER HARDWARE AND ALGORITHMS. SOME COMPETENCE IN MATHEMATICS IS NEEDED TO THE LEVEL OF ELEMENTARY LINEAR ALGEBRA AND CALCULUS.

FUNDAMENTALS OF DEEP LEARNING AND COMPUTER VISION - SINGH NIKHIL 2020-02-24
MASTER COMPUTER VISION CONCEPTS USING DEEP LEARNING WITH EASY-TO-FOLLOW STEPS
KEY FEATURES
A- SETTING UP THE PYTHON AND TENSORFLOW ENVIRONMENT
A- LEARN CORE TENSORFLOW CONCEPTS WITH THE LATEST TF VERSION 2.0
A- LEARN DEEP LEARNING FOR COMPUTER VISION APPLICATIONS
A- UNDERSTAND DIFFERENT COMPUTER VISION CONCEPTS AND USE-CASES
A- UNDERSTAND DIFFERENT STATE-OF-THE-ART CNN ARCHITECTURES
A- BUILD DEEP NEURAL NETWORKS WITH TRANSFER LEARNING USING FEATURES FROM PRE-TRAINED CNN MODELS
A- APPLY COMPUTER VISION CONCEPTS WITH EASY-TO-FOLLOW CODE IN JUPYTER NOTEBOOK
DESCRIPTION
THIS BOOK STARTS WITH SETTING UP A PYTHON VIRTUAL ENVIRONMENT WITH THE DEEP LEARNING FRAMEWORK TENSORFLOW AND THEN INTRODUCES THE FUNDAMENTAL CONCEPTS OF TENSORFLOW. BEFORE MOVING ON TO COMPUTER VISION, YOU WILL LEARN ABOUT NEURAL NETWORKS AND RELATED ASPECTS SUCH AS LOSS FUNCTIONS, GRADIENT DESCENT OPTIMIZATION, ACTIVATION FUNCTIONS AND HOW BACKPROPAGATION WORKS FOR TRAINING MULTI-LAYER PERCEPTRONS. TO UNDERSTAND HOW THE CONVOLUTIONAL NEURAL NETWORK (CNN) IS USED FOR COMPUTER VISION PROBLEMS, YOU NEED TO LEARN ABOUT THE BASIC CONVOLUTION OPERATION. YOU WILL LEARN HOW CNN IS DIFFERENT FROM A MULTI-LAYER PERCEPTRON ALONG WITH A THOROUGH DISCUSSION ON THE DIFFERENT BUILDING BLOCKS OF THE CNN ARCHITECTURE SUCH AS KERNEL SIZE, STRIDE, PADDING, AND POOLING AND FINALLY LEARN HOW TO BUILD A SMALL CNN MODEL. NEXT, YOU WILL LEARN ABOUT DIFFERENT POPULAR CNN ARCHITECTURES SUCH AS ALEXNET, VGGNET, INCEPTION, AND RESNETS ALONG WITH DIFFERENT OBJECT DETECTION ALGORITHMS SUCH AS RCNN, SSD, AND YOLO. THE BOOK CONCLUDES WITH A CHAPTER ON SEQUENTIAL MODELS WHERE YOU WILL LEARN ABOUT RNN, GRU, AND LSTMS AND THEIR

ARCHITECTURES AND UNDERSTAND THEIR APPLICATIONS IN MACHINE TRANSLATION, IMAGE/VIDEO CAPTIONING AND VIDEO CLASSIFICATION. WHAT WILL YOU LEARN
THIS BOOK WILL HELP THE READERS TO UNDERSTAND AND APPLY THE LATEST DEEP LEARNING TECHNOLOGIES TO DIFFERENT INTERESTING COMPUTER VISION APPLICATIONS WITHOUT ANY PRIOR DOMAIN KNOWLEDGE OF IMAGE PROCESSING. THUS, HELPING THE USERS TO ACQUIRE NEW SKILLS SPECIFIC TO COMPUTER VISION AND DEEP LEARNING AND BUILD SOLUTIONS TO REAL-LIFE PROBLEMS SUCH AS IMAGE CLASSIFICATION AND OBJECT DETECTION. WHO THIS BOOK IS FOR
THIS BOOK IS FOR ALL THE DATA SCIENCE ENTHUSIASTS AND PRACTITIONERS WHO INTEND TO LEARN AND MASTER COMPUTER VISION CONCEPTS AND THEIR APPLICATIONS USING DEEP LEARNING. THIS BOOK ASSUMES A BASIC PYTHON UNDERSTANDING WITH HANDS-ON EXPERIENCE. A BASIC SENIOR SECONDARY LEVEL UNDERSTANDING OF MATHEMATICS WILL HELP THE READER TO MAKE THE BEST OUT OF THIS BOOK.
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1. INTRODUCTION TO TENSORFLOW
2. INTRODUCTION TO NEURAL NETWORKS
3. CONVOLUTIONAL NEURAL NETWORK
4. CNN ARCHITECTURES
5. SEQUENTIAL MODELS
ABOUT THE AUTHOR
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HANDS-ON DEEP LEARNING ALGORITHMS WITH PYTHON - SUDHARSAN RAVICHANDIRAN 2019-07-25

THIS BOOK INTRODUCES BASIC-TO-ADVANCED DEEP LEARNING ALGORITHMS USED IN A PRODUCTION ENVIRONMENT BY AI RESEARCHERS AND PRINCIPAL DATA SCIENTISTS; IT EXPLAINS ALGORITHMS INTUITIVELY, INCLUDING THE UNDERLYING MATH, AND SHOWS HOW TO IMPLEMENT THEM USING POPULAR PYTHON-BASED DEEP LEARNING LIBRARIES SUCH AS TENSORFLOW.

DEEP LEARNING WITH PYTHON - FRANCOIS CHOLLET 2017-11-30
SUMMARY
DEEP LEARNING WITH PYTHON INTRODUCES THE FIELD OF DEEP LEARNING USING THE PYTHON LANGUAGE AND THE POWERFUL KERAS LIBRARY. WRITTEN BY KERAS CREATOR AND GOOGLE AI RESEARCHER FRANÇOIS CHOLLET, THIS BOOK BUILDS YOUR UNDERSTANDING THROUGH INTUITIVE EXPLANATIONS AND PRACTICAL EXAMPLES. PURCHASE OF THE PRINT BOOK INCLUDES A FREE eBook IN PDF, KINDLE, AND EPUB FORMATS FROM MANNING PUBLICATIONS. ABOUT THE TECHNOLOGY
MACHINE LEARNING HAS MADE REMARKABLE

PROGRESS IN RECENT YEARS. WE WENT FROM NEAR-UNUSABLE SPEECH AND IMAGE RECOGNITION, TO NEAR-HUMAN ACCURACY. WE WENT FROM MACHINES THAT COULDN'T BEAT A SERIOUS GO PLAYER, TO DEFEATING A WORLD CHAMPION. BEHIND THIS PROGRESS IS DEEP LEARNING—A COMBINATION OF ENGINEERING ADVANCES, BEST PRACTICES, AND THEORY THAT ENABLES A WEALTH OF PREVIOUSLY IMPOSSIBLE SMART APPLICATIONS. ABOUT THE BOOK DEEP LEARNING WITH PYTHON INTRODUCES THE FIELD OF DEEP LEARNING USING THE PYTHON LANGUAGE AND THE POWERFUL KERAS LIBRARY. WRITTEN BY KERAS CREATOR AND GOOGLE AI RESEARCHER FRANÇOIS CHOLLET, THIS BOOK BUILDS YOUR UNDERSTANDING THROUGH INTUITIVE EXPLANATIONS AND PRACTICAL EXAMPLES. YOU'LL EXPLORE CHALLENGING CONCEPTS AND PRACTICE WITH APPLICATIONS IN COMPUTER VISION, NATURAL-LANGUAGE PROCESSING, AND GENERATIVE MODELS. BY THE TIME YOU FINISH, YOU'LL HAVE THE KNOWLEDGE AND HANDS-ON SKILLS TO APPLY DEEP LEARNING IN YOUR OWN PROJECTS. WHAT'S INSIDE DEEP LEARNING FROM FIRST PRINCIPLES SETTING UP YOUR OWN DEEP-LEARNING ENVIRONMENT IMAGE-CLASSIFICATION MODELS DEEP LEARNING FOR TEXT AND SEQUENCES NEURAL STYLE TRANSFER, TEXT GENERATION, AND IMAGE GENERATION ABOUT THE READER READERS NEED INTERMEDIATE PYTHON SKILLS. NO PREVIOUS EXPERIENCE WITH KERAS, TENSORFLOW, OR MACHINE LEARNING IS REQUIRED. ABOUT THE AUTHOR FRANÇOIS CHOLLET WORKS ON DEEP LEARNING AT GOOGLE IN MOUNTAIN VIEW, CA. HE IS THE CREATOR OF THE KERAS DEEP-LEARNING LIBRARY, AS WELL AS A CONTRIBUTOR TO THE TENSORFLOW MACHINE-LEARNING FRAMEWORK. HE ALSO DOES DEEP-LEARNING RESEARCH, WITH A FOCUS ON COMPUTER VISION AND THE APPLICATION OF MACHINE LEARNING TO FORMAL REASONING. HIS PAPERS HAVE BEEN PUBLISHED AT MAJOR CONFERENCES IN THE FIELD, INCLUDING THE CONFERENCE ON COMPUTER VISION AND PATTERN RECOGNITION (CVPR), THE CONFERENCE AND WORKSHOP ON NEURAL INFORMATION PROCESSING SYSTEMS (NIPS), THE INTERNATIONAL CONFERENCE ON LEARNING REPRESENTATIONS (ICLR), AND OTHERS. TABLE OF CONTENTS PART 1 - FUNDAMENTALS OF DEEP LEARNING WHAT IS DEEP LEARNING? BEFORE WE BEGIN: THE MATHEMATICAL BUILDING BLOCKS OF NEURAL NETWORKS GETTING STARTED WITH NEURAL NETWORKS FUNDAMENTALS OF MACHINE LEARNING PART 2 - DEEP LEARNING IN PRACTICE DEEP LEARNING FOR COMPUTER VISION DEEP LEARNING FOR TEXT AND SEQUENCES ADVANCED DEEP-LEARNING BEST PRACTICES GENERATIVE DEEP LEARNING CONCLUSIONS APPENDIX A - INSTALLING KERAS AND ITS DEPENDENCIES ON UBUNTU APPENDIX B - RUNNING JUPYTER NOTEBOOKS ON AN EC2 GPU INSTANCE PRACTICAL DEEP LEARNING FOR CLOUD, MOBILE, AND EDGE - ANIRUDH KOUL 2019-10-14 WHETHER YOU'RE A SOFTWARE ENGINEER ASPIRING TO ENTER THE WORLD OF DEEP LEARNING, A VETERAN DATA SCIENTIST, OR A HOBBYIST WITH A SIMPLE DREAM OF MAKING THE NEXT VIRAL AI APP, YOU MIGHT HAVE WONDERED WHERE TO BEGIN. THIS STEP-BY-STEP GUIDE TEACHES YOU HOW TO BUILD PRACTICAL DEEP LEARNING APPLICATIONS FOR THE CLOUD, MOBILE, BROWSERS, AND EDGE DEVICES USING A HANDS-ON APPROACH. RELYING ON YEARS OF INDUSTRY EXPERIENCE TRANSFORMING DEEP LEARNING RESEARCH INTO AWARD-WINNING APPLICATIONS, ANIRUDH KOUL, SIDDHA GANJU, AND MEHER KASAM GUIDE YOU THROUGH THE

PROCESS OF CONVERTING AN IDEA INTO SOMETHING THAT PEOPLE IN THE REAL WORLD CAN USE. TRAIN, TUNE, AND DEPLOY COMPUTER VISION MODELS WITH KERAS, TENSORFLOW, CORE ML, AND TENSORFLOW LITE DEVELOP AI FOR A RANGE OF DEVICES INCLUDING RASPBERRY PI, JETSON NANO, AND GOOGLE CORAL EXPLORE FUN PROJECTS, FROM SILICON VALLEY'S NOT HOTDOG APP TO 40+ INDUSTRY CASE STUDIES SIMULATE AN AUTONOMOUS CAR IN A VIDEO GAME ENVIRONMENT AND BUILD A MINIATURE VERSION WITH REINFORCEMENT LEARNING USE TRANSFER LEARNING TO TRAIN MODELS IN MINUTES DISCOVER 50+ PRACTICAL TIPS FOR MAXIMIZING MODEL ACCURACY AND SPEED, DEBUGGING, AND SCALING TO MILLIONS OF USERS

DEEP LEARNING FOR COMPUTER VISION - RAJALINGAPPAA SHANMUGAMANI 2018-01-23 LEARN HOW TO MODEL AND TRAIN ADVANCED NEURAL NETWORKS TO IMPLEMENT A VARIETY OF COMPUTER VISION TASKS KEY FEATURES TRAIN DIFFERENT KINDS OF DEEP LEARNING MODEL FROM SCRATCH TO SOLVE SPECIFIC PROBLEMS IN COMPUTER VISION COMBINE THE POWER OF PYTHON, KERAS, AND TENSORFLOW TO BUILD DEEP LEARNING MODELS FOR OBJECT DETECTION, IMAGE CLASSIFICATION, SIMILARITY LEARNING, IMAGE CAPTIONING, AND MORE INCLUDES TIPS ON OPTIMIZING AND IMPROVING THE PERFORMANCE OF YOUR MODELS UNDER VARIOUS CONSTRAINTS BOOK DESCRIPTION DEEP LEARNING HAS SHOWN ITS POWER IN SEVERAL APPLICATION AREAS OF ARTIFICIAL INTELLIGENCE, ESPECIALLY IN COMPUTER VISION. COMPUTER VISION IS THE SCIENCE OF UNDERSTANDING AND MANIPULATING IMAGES, AND FINDS ENORMOUS APPLICATIONS IN THE AREAS OF ROBOTICS, AUTOMATION, AND SO ON. THIS BOOK WILL ALSO SHOW YOU, WITH PRACTICAL EXAMPLES, HOW TO DEVELOP COMPUTER VISION APPLICATIONS BY LEVERAGING THE POWER OF DEEP LEARNING. IN THIS BOOK, YOU WILL LEARN DIFFERENT TECHNIQUES RELATED TO OBJECT CLASSIFICATION, OBJECT DETECTION, IMAGE SEGMENTATION, CAPTIONING, IMAGE GENERATION, FACE ANALYSIS, AND MORE. YOU WILL ALSO EXPLORE THEIR APPLICATIONS USING POPULAR PYTHON LIBRARIES SUCH AS TENSORFLOW AND KERAS. THIS BOOK WILL HELP YOU MASTER STATE-OF-THE-ART, DEEP LEARNING ALGORITHMS AND THEIR IMPLEMENTATION. WHAT YOU WILL LEARN SET UP AN ENVIRONMENT FOR DEEP LEARNING WITH PYTHON, TENSORFLOW, AND KERAS DEFINE AND TRAIN A MODEL FOR IMAGE AND VIDEO CLASSIFICATION USE FEATURES FROM A PRE-TRAINED CONVOLUTIONAL NEURAL NETWORK MODEL FOR IMAGE RETRIEVAL UNDERSTAND AND IMPLEMENT OBJECT DETECTION USING THE REAL-WORLD PEDESTRIAN DETECTION SCENARIO LEARN ABOUT VARIOUS PROBLEMS IN IMAGE CAPTIONING AND HOW TO OVERCOME THEM BY TRAINING IMAGES AND TEXT TOGETHER IMPLEMENT SIMILARITY MATCHING AND TRAIN A MODEL FOR FACE RECOGNITION UNDERSTAND THE CONCEPT OF GENERATIVE MODELS AND USE THEM FOR IMAGE GENERATION DEPLOY YOUR DEEP LEARNING MODELS AND OPTIMIZE THEM FOR HIGH PERFORMANCE WHO THIS BOOK IS FOR THIS BOOK IS TARGETED AT DATA SCIENTISTS AND COMPUTER VISION PRACTITIONERS WHO WISH TO APPLY THE CONCEPTS OF DEEP LEARNING TO OVERCOME ANY PROBLEM RELATED TO COMPUTER VISION. A BASIC KNOWLEDGE OF PROGRAMMING IN PYTHON—AND SOME UNDERSTANDING OF MACHINE LEARNING CONCEPTS—IS REQUIRED TO GET THE BEST OUT OF THIS BOOK.

HANDS-ON ONE-SHOT LEARNING WITH PYTHON - SHRUTI JADON 2020-04-10

GET TO GRIPS WITH BUILDING POWERFUL DEEP LEARNING MODELS USING PYTORCH AND SCIKIT-LEARN KEY FEATURES LEARN HOW YOU CAN SPEED UP THE DEEP LEARNING PROCESS WITH ONE-SHOT LEARNING USE PYTHON AND PYTORCH TO BUILD STATE-OF-THE-ART ONE-SHOT LEARNING MODELS EXPLORE ARCHITECTURES SUCH AS SIAMESE NETWORKS, MEMORY-AUGMENTED NEURAL NETWORKS, MODEL-AGNOSTIC META-LEARNING, AND DISCRIMINATIVE K-SHOT LEARNING BOOK DESCRIPTION ONE-SHOT LEARNING HAS BEEN AN ACTIVE FIELD OF RESEARCH FOR SCIENTISTS TRYING TO DEVELOP A COGNITIVE MACHINE THAT MIMICS HUMAN LEARNING. WITH THIS BOOK, YOU'LL EXPLORE KEY APPROACHES TO ONE-SHOT LEARNING, SUCH AS METRICS-BASED, MODEL-BASED, AND OPTIMIZATION-BASED TECHNIQUES, ALL WITH THE HELP OF PRACTICAL EXAMPLES. HANDS-ON ONE-SHOT LEARNING WITH PYTHON WILL GUIDE YOU THROUGH THE EXPLORATION AND DESIGN OF DEEP LEARNING MODELS THAT CAN OBTAIN INFORMATION ABOUT AN OBJECT FROM ONE OR JUST A FEW TRAINING SAMPLES. THE BOOK BEGINS WITH AN OVERVIEW OF DEEP LEARNING AND ONE-SHOT LEARNING AND THEN INTRODUCES YOU TO THE DIFFERENT METHODS YOU CAN USE TO ACHIEVE IT, SUCH AS DEEP LEARNING ARCHITECTURES AND PROBABILISTIC MODELS. ONCE YOU'VE GOT TO GRIPS WITH THE CORE PRINCIPLES, YOU'LL EXPLORE REAL-WORLD EXAMPLES AND IMPLEMENTATIONS OF ONE-SHOT LEARNING USING PYTORCH 1.X ON DATASETS SUCH AS OMNIGLOT AND MINIIMAGE.NET. FINALLY, YOU'LL EXPLORE GENERATIVE MODELING-BASED METHODS AND DISCOVER THE KEY CONSIDERATIONS FOR BUILDING SYSTEMS THAT EXHIBIT HUMAN-LEVEL INTELLIGENCE. BY THE END OF THIS BOOK, YOU'LL BE WELL-VERSED WITH THE DIFFERENT ONE- AND FEW-SHOT LEARNING METHODS AND BE ABLE TO USE THEM TO BUILD YOUR OWN DEEP LEARNING MODELS. WHAT YOU WILL LEARN GET TO GRIPS WITH THE FUNDAMENTAL CONCEPTS OF ONE- AND FEW-SHOT LEARNING WORK WITH DIFFERENT DEEP LEARNING ARCHITECTURES FOR ONE-SHOT LEARNING UNDERSTAND WHEN TO USE ONE-SHOT AND TRANSFER LEARNING, RESPECTIVELY STUDY THE BAYESIAN NETWORK APPROACH FOR ONE-SHOT LEARNING IMPLEMENT ONE-SHOT LEARNING APPROACHES BASED ON METRICS, MODELS, AND OPTIMIZATION IN PYTORCH DISCOVER DIFFERENT OPTIMIZATION ALGORITHMS THAT HELP TO IMPROVE ACCURACY EVEN WITH SMALLER VOLUMES OF DATA EXPLORE VARIOUS ONE-SHOT LEARNING ARCHITECTURES BASED ON CLASSIFICATION AND REGRESSION WHO THIS BOOK IS FOR IF YOU'RE AN AI RESEARCHER OR A MACHINE LEARNING OR DEEP LEARNING EXPERT LOOKING TO EXPLORE ONE-SHOT LEARNING, THIS BOOK IS FOR YOU. IT WILL HELP YOU GET STARTED WITH IMPLEMENTING VARIOUS ONE-SHOT TECHNIQUES TO TRAIN MODELS FASTER. SOME PYTHON PROGRAMMING EXPERIENCE IS NECESSARY TO UNDERSTAND THE CONCEPTS COVERED IN THIS BOOK.

PYTORCH COMPUTER VISION COOKBOOK - MICHAEL AVENDI 2020-03-20

DISCOVER POWERFUL WAYS TO USE DEEP LEARNING ALGORITHMS AND SOLVE REAL-WORLD COMPUTER VISION PROBLEMS USING PYTHON KEY FEATURES SOLVE THE TRICKIEST OF PROBLEMS IN COMPUTER VISION BY COMBINING THE POWER OF DEEP LEARNING AND NEURAL NETWORKS LEVERAGE PYTORCH 1.X CAPABILITIES TO PERFORM IMAGE CLASSIFICATION,

OBJECT DETECTION, AND MORE TRAIN AND DEPLOY ENTERPRISE-GRADE, DEEP LEARNING MODELS FOR COMPUTER VISION APPLICATIONS BOOK DESCRIPTION COMPUTER VISION TECHNIQUES PLAY AN INTEGRAL ROLE IN HELPING DEVELOPERS GAIN A HIGH-LEVEL UNDERSTANDING OF DIGITAL IMAGES AND VIDEOS. WITH THIS BOOK, YOU'LL LEARN HOW TO SOLVE THE TRICKIEST PROBLEMS IN COMPUTER VISION (CV) USING THE POWER OF DEEP LEARNING ALGORITHMS, AND LEVERAGE THE LATEST FEATURES OF PYTORCH 1.X TO PERFORM A VARIETY OF CV TASKS. STARTING WITH A QUICK OVERVIEW OF THE PYTORCH LIBRARY AND KEY DEEP LEARNING CONCEPTS, THE BOOK THEN COVERS COMMON AND NOT-SO-COMMON CHALLENGES FACED WHILE PERFORMING IMAGE RECOGNITION, IMAGE SEGMENTATION, OBJECT DETECTION, IMAGE GENERATION, AND OTHER TASKS. NEXT, YOU'LL UNDERSTAND HOW TO IMPLEMENT THESE TASKS USING VARIOUS DEEP LEARNING ARCHITECTURES SUCH AS CONVOLUTIONAL NEURAL NETWORKS (CNNs), RECURRENT NEURAL NETWORKS (RNNs), LONG SHORT-TERM MEMORY (LSTM), AND GENERATIVE ADVERSARIAL NETWORKS (GANs). USING A PROBLEM-SOLUTION APPROACH, YOU'LL LEARN HOW TO SOLVE ANY ISSUE YOU MIGHT FACE WHILE FINE-TUNING THE PERFORMANCE OF A MODEL OR INTEGRATING IT INTO YOUR APPLICATION. LATER, YOU'LL GET TO GRIPS WITH SCALING YOUR MODEL TO HANDLE LARGER WORKLOADS, AND IMPLEMENTING BEST PRACTICES FOR TRAINING MODELS EFFICIENTLY. BY THE END OF THIS CV BOOK, YOU'LL BE PROFICIENT IN CONFIDENTLY SOLVING MANY CV RELATED PROBLEMS USING DEEP LEARNING AND PYTORCH. WHAT YOU WILL LEARN DEVELOP, TRAIN AND DEPLOY DEEP LEARNING ALGORITHMS USING PYTORCH 1.X UNDERSTAND HOW TO FINE-TUNE AND CHANGE HYPERPARAMETERS TO TRAIN DEEP LEARNING ALGORITHMS PERFORM VARIOUS CV TASKS SUCH AS CLASSIFICATION, DETECTION, AND SEGMENTATION IMPLEMENT A NEURAL STYLE TRANSFER NETWORK BASED ON CNNs AND PRE-TRAINED MODELS GENERATE NEW IMAGES AND IMPLEMENT ADVERSARIAL ATTACKS USING GANs IMPLEMENT VIDEO CLASSIFICATION MODELS BASED ON RNN, LSTM, AND 3D-CNN DISCOVER BEST PRACTICES FOR TRAINING AND DEPLOYING DEEP LEARNING ALGORITHMS FOR CV APPLICATIONS WHO THIS BOOK IS FOR COMPUTER VISION PROFESSIONALS, DATA SCIENTISTS, DEEP LEARNING ENGINEERS, AND AI DEVELOPERS LOOKING FOR QUICK SOLUTIONS FOR VARIOUS COMPUTER VISION PROBLEMS WILL FIND THIS BOOK USEFUL. INTERMEDIATE-LEVEL KNOWLEDGE OF COMPUTER VISION CONCEPTS, ALONG WITH PYTHON PROGRAMMING EXPERIENCE IS REQUIRED. DEEP LEARNING ON WINDOWS - THIMIRA AMARATUNGA 2021-02-25 BUILD DEEP LEARNING AND COMPUTER VISION SYSTEMS USING PYTHON, TENSORFLOW, KERAS, OPENCV, AND MORE, RIGHT WITHIN THE FAMILIAR ENVIRONMENT OF MICROSOFT WINDOWS. THE BOOK STARTS WITH AN INTRODUCTION TO TOOLS FOR DEEP LEARNING AND COMPUTER VISION TASKS FOLLOWED BY INSTRUCTIONS TO INSTALL, CONFIGURE, AND TROUBLESHOOT THEM. HERE, YOU WILL LEARN HOW PYTHON CAN HELP YOU BUILD DEEP LEARNING MODELS ON WINDOWS. MOVING FORWARD, YOU WILL BUILD A DEEP LEARNING MODEL AND UNDERSTAND THE INTERNAL WORKINGS OF A CONVOLUTIONAL NEURAL NETWORK ON WINDOWS. FURTHER, YOU WILL GO THROUGH DIFFERENT WAYS TO VISUALIZE THE INTERNAL WORKINGS OF DEEP LEARNING MODELS ALONG WITH AN UNDERSTANDING OF

TRANSFER LEARNING WHERE YOU WILL LEARN HOW TO BUILD A MODEL ARCHITECTURE AND USE DATA AUGMENTATIONS. NEXT, YOU WILL MANAGE AND TRAIN DEEP LEARNING MODELS ON WINDOWS BEFORE DEPLOYING YOUR APPLICATION AS A WEB APPLICATION. YOU'LL ALSO DO SOME BASIC IMAGE PROCESSING AND WORK WITH COMPUTER VISION OPTIONS THAT WILL HELP YOU BUILD VARIOUS APPLICATIONS WITH DEEP LEARNING. FINALLY, YOU WILL USE GENERATIVE ADVERSARIAL NETWORKS ALONG WITH REINFORCEMENT LEARNING. AFTER READING DEEP LEARNING ON WINDOWS, YOU WILL BE ABLE TO DESIGN DEEP LEARNING MODELS AND

WEB APPLICATIONS ON THE WINDOWS OPERATING SYSTEM. WHAT YOU WILL LEARN GET DEEP LEARNING TOOLS WORKING ON MICROSOFT WINDOWS UNDERSTAND MODEL VISUALIZATION TECHNIQUES, SUCH AS THE BUILT-IN PLOT_MODEL FUNCTION OF KERAS AND THIRD-PARTY VISUALIZATION TOOLS BUILD A ROBUST TRAINING SCRIPT CONVERT YOUR DEEP LEARNING MODEL INTO A WEB APPLICATION GENERATE HANDWRITTEN DIGITS WITH DCGAN (DEEP CONVOLUTIONAL GENERATIVE ADVERSARIAL NETWORK) UNDERSTAND THE BASICS OF REINFORCEMENT LEARNING WHO THIS BOOK IS FOR AI DEVELOPERS AND ENTHUSIASTS WANTING TO WORK ON THE WINDOWS PLATFORM.