Introducing Microsoft Azure Machine Learning

This book provides a broad and comprehensive overview of the existing technical approaches in the area of silent speech interfaces (SSI), both in theory and in application. Each technique is described in the context of the human speech production process, allowing the reader to clearly understand the principles behind SSI in general and across different methods. Additionally, the book explores the combined use of different data sources, collected from various sensors, in order to tackle the limitations of simpler SSI approaches, addressing current challenges of this field. The book also provides information about existing SSI applications, resources and a simple tutorial on how to build an SSI.

NOTE: This title is also available as a free eBook. It is offered for sale in print format as a convenience. Get a head start evaluating System Center 2012 R2 - with technical insights from a Microsoft MVP and members of the System Center product team. This guide introduces new features and capabilities, with scenario-based advice on how the platform can meet the needs of your business. Get the high-level overview you need to begin preparing your deployment now. Preview new features and enhancements, including: Virtual Machine Manager App Controller Configuration Manager Data Protection Manager Operations Manager Advisor Service Manager Orchestrator

Implement machine learning, cognitive services, and artificial intelligence solutions by leveraging Azure cloud technologies Key FeaturesLearn advanced concepts in Azure ML and the Cortana Intelligence Suite architectureExplore ML Server using SQL Server and HDInsight capabilitiesImplement various tools in Azure to build and deploy machine learning modelsBook Description Implementing Machine learning (ML) and Artificial Intelligence (AI) in the cloud had not been possible earlier due to the lack of processing power and storage. However, Azure has created ML and AI services that are easy to implement in the cloud. Hands-On Machine Learning with Azure teaches you how to perform advanced ML projects in the cloud in a cost-effective way. The book begins by covering the benefits of ML and AI in the cloud. You will then explore Microsoft’s Team Data Science Process to establish a repeatable process for successful AI development and implementation. You will also gain an understanding of AI technologies available in Azure and the Cognitive Services APIs to integrate them into bot applications. This book lets you explore prebuilt templates with Azure Machine Learning Studio and build a model using canned algorithms that can be deployed as web services. The book then takes you through a preconfigured series of virtual machines in Azure targeted at AI development scenarios. You will get to grips with the ML Server and its capabilities in SQL and HDInsight. In the concluding chapters, you’ll integrate patterns with other non-AI services in Azure. By the end of this book, you will be fully equipped to implement smart cognitive actions in your models. What you will learnDiscover the benefits of leveraging the cloud for ML and AIUse Cognitive Services APIs to build intelligent botsBuild a model using canned algorithms from Microsoft and deploy it as a web serviceDeploy virtual machines in AI development scenariosApply R, Python, SQL Server, and Spark in AzureBuild and deploy deep learning solutions with CNTK, MMLSpark, and TensorFlowImplement model retraining in IoT, Streaming, and Blockchain solutionsExplore best practices for integrating ML and AI functions with ADLA and logic appsWho this book is for If you are a data scientist or developer familiar with Azure ML and cognitive services and want to create smart models and make sense of data in the cloud, this book is for you. You’ll also find this book useful if you want to bring powerful machine learning services into your cloud applications. Some experience with data manipulation and processing, using languages like SQL, Python, and R, will aid in understanding the concepts covered in this book

Predictive Analytics with Microsoft Azure Machine Learning, Second Edition is a practical tutorial introduction to the field of data science and machine learning, with a focus on building and deploying predictive models. The book provides a thorough overview of the Microsoft Azure Machine Learning service released for general availability on February 18th, 2015 with practical guidance for building recommenders, propensity models, and churn and predictive maintenance models. The authors use task oriented descriptions and concrete end-to-end examples to ensure that the reader can immediately begin using this new service. The book describes all aspects of the service from data ingress to applying machine learning, evaluating the models, and deploying them as web services. Learn how you can quickly build and deploy sophisticated predictive models with the new Azure Machine Learning from Microsoft. What’s New in the Second Edition? Five new chapters have been added with practical detailed coverage of: Python Integration – a new feature announced February 2015 Data preparation and feature selection Data visualization with Power BI Recommendation engines Selling your models on Azure Marketplace

Practical Automated Machine Learning on Azure

Deep Learning with Azure

Planning with Markov Decision Processes

Microsoft Azure Essentials - Fundamentals of Azure

Build and Deploy Actionable Solutions in Minutes

An AI Perspective

Mission-Critical Applications, Deeper Insights, Hyperscale Cloud

With Microsoft SQL Server 2016, a variety of new features and enhancements to the data platform deliver breakthrough performance, advanced security, and richer, integrated reporting and analytics

capabilities. In this ebook, we introduce new security features: Always Encrypted, Row-Level Security, and dynamic data masking; discuss enhancements that enable you to better manage performance and storage: TemDB configuration, query store, and Stretch Database; review several improvements to Reporting Services; and also describe AlwaysOn Availability Groups, tabular enhancements, and R integration.
Serverless computing is radically changing the way we build and deploy applications. With cloud providers running servers and managing machine resources, companies now can focus solely on the application's business logic and functionality. This hands-on book shows experienced programmers how to build and deploy scalable machine learning and deep learning models using serverless architectures with Microsoft Azure. You'll learn step-by-step how to code machine learning into your projects using Python and pre-trained models that include tools such as image recognition, speech recognition, and classification. You'll also examine issues around deployment and continuous delivery including scaling, security, and monitoring. This book is divided into four parts: Cloud-based development: learn the basics of serverless computing with machine learning, functions as a service (FaaS), and the use of APIs Adding intelligence: create serverless applications using Azure Functions; learn how to use pre-built machine-learning and deep-learning models Deployment and continuous delivery: get up to speed with Azure Kubernetes Service, as well as Azure Security Center, and Azure Monitoring Application examples: deliver data at the edge, build conversational interfaces, and use convolutional neural networks for image classification
Know how to do machine learning with Microsoft technologies. This book teaches you to do predictive, descriptive, and prescriptive analyses with Microsoft Power BI, Azure Data Lake, SQL Server, Stream Analytics, Azure Databricks, HD Insight, and more. The ability to analyze massive amounts of real-time data and predict future behavior of an organization is critical to its long-term success. Data science, and more specifically machine learning (ML), is today's game changer and should be a key building block in every company's strategy. Managing a machine learning process from business understanding, data acquisition and cleaning, modeling, and deployment in each tool is a valuable skill set. Machine Learning with Microsoft Technologies is a demo-driven book that explains how to do machine learning with Microsoft technologies. You will gain valuable insight into designing the best architecture for development, sharing, and deploying a machine learning solution. This book simplifies the process of choosing the right architecture and tools for doing machine learning based on your specific infrastructure needs and requirements. Detailed content is provided on the main algorithms for supervised and unsupervised machine learning and examples show ML practices using both R and Python languages, the main languages inside Microsoft technologies. What You'll Learn Choose the right Microsoft product for your machine learning solutionCreate and manage Microsoft's tool environments for development, testing, and production of a machine learning projectImplement and deploy supervised and unsupervised learning in Microsoft products Set up Microsoft Power BI, Azure Data Lake, SQL Server, Stream Analytics, Azure Databricks, and HD Insight to perform machine learning Set up a data science virtual machine and test-drive installed tools, such as Azure ML Workbench, Azure ML Server Developer, Anaconda Python, Jupyter Notebook, Power BI Desktop, Cognitive Services, machine learning and data analytics tools, and more Architect a machine learning solution factoring in all aspects of self service, enterprise, deployment, and sharing Who This Book Is For Data scientists, data analysts, developers, architects, and managers who want to leverage machine learning in their products, organization, and services, and make educated, cost-saving decisions about their ML architecture and tool set.
A practical, step-by-step guide to using Microsoft's AutoML technology on the Azure Machine Learning service for developers and data scientists working with the Python programming language Key FeaturesCreate, deploy, productionalize, and scale automated machine learning solutions on Microsoft AzureImprove the accuracy of your ML models through automatic data featurization and model trainingIncrease productivity in your organization by using artificial intelligence to solve common problemsBook Description Automated Machine Learning with Microsoft Azure will teach you how to build high-performing, accurate machine learning models in record time. It will equip you with the knowledge and skills to easily harness the power of artificial intelligence and increase the productivity and profitability of your business. Guided user interfaces (GUIs) enable both novices and seasoned data scientists to easily train and deploy machine learning solutions to production. Using a careful, step-by-step approach, this book will teach you how to use Azure AutoML with a GUI as well as the AzureML Python software development kit (SDK). First, you'll learn how to prepare data, train models, and register them to your Azure Machine Learning workspace. You'll then discover how to take those models and use them to create both automated batch solutions using machine learning pipelines and real-time scoring solutions using Azure Kubernetes Service (AKS). Finally, you will be able to use AutoML on your own data to not only train regression, classification, and forecasting models but also use them to solve a wide variety of business problems. By the end of this Azure book, you'll be able to show your business partners exactly how your ML models are making predictions through automatically generated charts and graphs, earning their trust and respect. What you will learnUnderstand how to train classification, regression, and forecasting ML algorithms with Azure AutoMLPrepare data for Azure AutoML to ensure smooth model training and deploymentAdjust AutoML configuration settings to make your models as accurate as possibleDetermine when to use a batch-scoring solution versus a real-time scoring solutionProductionalize your AutoML and discover how to quickly deliver valueCreate real-time scoring solutions with AutoML and Azure Kubernetes ServiceTrain a large number of AutoML models at once using the AzureML Python SDKWho this book is for Data scientists, aspiring data scientists, machine learning engineers, or anyone interested in applying artificial intelligence or machine learning in their business will find this machine learning book useful. You need to have beginner-level knowledge of artificial intelligence and a technical background in computer science, statistics, or information technology before getting started. Familiarity with Python will help you implement the more advanced features found in the chapters, but even data analysts and SQL experts will be able to train ML models

after finishing this book.
Building Intelligent Cloud Applications
Tools and Techniques Using Databricks and MLOps
Microsoft Azure Essentials Azure Machine Learning
Introducing Microsoft Azure HDInsight
Pattern Recognition and Machine Learning
Introducing Machine Learning
A Guide for Data Scientists

Machine learning has become an integral part of many commercial applications and research projects, but this field is not exclusive to large companies with extensive research teams. If you use Python, even as a beginner, this book will teach you practical ways to build your own machine learning solutions. With all the data available today, machine learning applications are limited only by your imagination. You'll learn the steps necessary to create a successful machine-learning application with Python and the scikit-learn library. Authors Andreas Müller and Sarah Guido focus on the practical aspects of using machine learning algorithms, rather than the math behind them. Familiarity with the NumPy and matplotlib libraries will help you get even more from this book. With this book, you'll learn: Fundamental concepts and applications of machine learning Advantages and shortcomings of widely used machine learning algorithms How to represent data processed by machine learning, including which data aspects to focus on Advanced methods for model evaluation and parameter tuning The concept of pipelines for chaining models and encapsulating your workflow Methods for working with text data, including text-specific processing techniques Suggestions for improving your machine learning and data science skills

Get up and running with machine learning life cycle management and implement MLOps in your organization Key FeaturesBecome well-versed with MLOps techniques to monitor the quality of machine learning models in productionExplore a monitoring framework for ML models in production and learn about end-to-end traceability for deployed modelsPerform CI/CD to automate new implementations in ML pipelinesBook Description Engineering MLps presents comprehensive insights into MLOps coupled with real-world examples in Azure to help you to write programs, train robust and scalable ML models, and build ML pipelines to train and deploy models securely in production. The book begins by familiarizing you with the MLOps workflow so you can start writing programs to train ML models. Then you'll then move on to explore options for serializing and packaging ML models post-training to deploy them to facilitate machine learning inference, model interoperability, and end-to-end model traceability. You'll learn how to build ML pipelines, continuous integration and continuous delivery (CI/CD) pipelines, and monitor pipelines to systematically build, deploy, monitor, and govern ML solutions for businesses and industries. Finally, you'll apply the knowledge you've gained to build real-world projects. By the end of this ML book, you'll have a 360-degree view of MLOps and be ready to implement MLOps in your organization. What you will learnFormulate data governance strategies and pipelines for ML training and deploymentGet to grips with implementing ML pipelines, CI/CD pipelines, and ML monitoring pipelinesDesign a robust and scalable microservice and API for test and production environmentsCurate your custom CD processes for related use cases and organizationsMonitor ML models, including monitoring data drift, model drift, and application performanceBuild and maintain automated ML systemsWho this book is for This MLOps book is for data scientists, software engineers, DevOps engineers, machine learning engineers, and business and technology leaders who want to build, deploy, and maintain ML systems in production using MLOps principles and techniques. Basic knowledge of machine learning is necessary to get started with this book.

This is the first textbook on pattern recognition to present the Bayesian viewpoint. The book presents approximate inference algorithms that permit fast approximate answers in situations where exact answers are not feasible. It uses graphical models to describe probability distributions when no other books apply graphical models to machine learning. No previous knowledge of pattern recognition or machine learning concepts is assumed. Familiarity with multivariate calculus and basic linear algebra is required, and some experience in the use of probabilities would be helpful though not essential as the book includes a self-contained introduction to basic probability theory.

Explore the impressive storage and analytic tools available with the in-cloud and on-premises versions of Microsoft SQL Server 2019. Key FeaturesGain insights into what's new in SQL Server 2019Understand use cases and customer scenarios that can be implemented with SQL Server 2019Discover new cross-platform tools that simplify management and analysisBook Description Microsoft SQL Server comes equipped with industry-leading features and the best online transaction processing capabilities. If you are looking to work with data processing and management, getting up to speed with Microsoft Server 2019 is key. Introducing SQL Server 2019 takes you through the latest features in SQL Server 2019 and their importance. You will learn to unlock faster querying speeds and understand how to leverage the new and improved security features to build robust data management solutions. Further chapters will assist you with integrating, managing, and analyzing all data, including relational, NoSQL, and unstructured big data using SQL Server 2019. Dedicated sections in the book will also demonstrate how you can use SQL Server 2019 to leverage data processing platforms, such as Apache Hadoop and Spark, and containerization technologies like Docker and Kubernetes to control your data and efficiently monitor it. By the end of this book, you'll be well versed with all the features of Microsoft SQL Server 2019 and understand how to use them confidently to build robust data management solutions. What you will learnBuild a custom container image with a DockerfileDeploy and run the SQL Server 2019 container imageUnderstand how to use SQL server on LinuxMigrate existing paginated reports to Power BI Report ServerLearn to query Hadoop Distributed File System (HDFS) data using Azure Data StudioUnderstand the benefits of In-Memory OLTPWho this book is for This book is for database administrators, architects, big data engineers, or anyone who has experience with SQL Server and wants to explore and implement the new features in SQL Server 2019. Basic working knowledge of SQL Server and relational database management system (RDBMS) is required.

Selecting the Right Architecture and Tools for Your Project
Machine Learning with Microsoft Technologies
Predictive Analytics with Microsoft Azure Machine Learning, Second Edition
Transform your business with the power of analytics in Azure, 2nd Edition
Build highly accurate and scalable end-to-end AI solutions with Azure AutoML
A Deep Learning Approach
Modern Computer Vision with PyTorch

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 PyTorch1.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 learnTrain 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.

Data Science and Machine Learning are in high demand, as customers are increasingly looking for ways to glean insights from all their data. More customers now realize that Business Intelligence is not enough as the volume, speed and complexity of data now defy traditional analytics tools. While Business Intelligence addresses descriptive and diagnostic analysis, Data Science unlocks new opportunities through predictive and prescriptive analysis. The purpose of this book is to provide a gentle and instructionally organized introduction to the field of data science and machine learning, with a focus on building and deploying predictive models. The book also provides a thorough overview of the Microsoft Azure Machine Learning service using task oriented descriptions and concrete end-to-end examples, sufficient to ensure the reader can immediately begin using this important new service. It describes all aspects of the service from data ingress to applying machine learning and evaluating the resulting model, to deploying the resulting model as a machine learning web service. Finally, this book attempts to have minimal dependencies, so that you can fairly easily pick and choose chapters to read. When dependencies do exist, they are listed at the start and end of the chapter. The simplicity of this new service from Microsoft will help to take Data Science and Machine Learning to a much broader audience than existing products in this space. Learn how you can quickly build and deploy sophisticated predictive models as machine learning web services with the new Azure Machine Learning service from Microsoft.

More than half of the analytics and machine learning (ML) models created by organizations today never make it into production. Some of the challenges and barriers to operationalization are technical, but others are organizational. Either way, the bottom line is that models not in production can't provide business impact. This book introduces the key concepts of MLOps to help data scientists and application engineers not only operationalize ML models to drive real business change but also maintain and improve those models over time. Through lessons based on numerous MLOps applications around the world, nine experts in machine learning provide insights into the five steps of the model life cycle--Build, Preproduction, Deployment, Monitoring, and Governance--uncovering how robust MLOps processes can be infused throughout. This book helps you: Fulfill data science value by reducing friction throughout ML pipelines and workflows Refine ML models through retraining, periodic tuning, and complete remodeling to ensure long-term accuracy Design the MLOps life cycle to minimize organizational risks with models that are unbiased, fair, and explainable Operationalize ML models for pipeline deployment and for external business systems that are more complex and less standardized

Markov Decision Processes (MDPs) are widely popular in Artificial Intelligence for modeling sequential decision-making scenarios with probabilistic dynamics. They are the framework of choice when designing an intelligent agent that needs to act for long periods of time in an environment where its actions could have uncertain outcomes. MDPs are actively researched in two related subareas of AI, probabilistic planning and reinforcement learning. Probabilistic planning assumes known models for the agent's goals and domain dynamics, and focuses on determining how the agent should behave to achieve its objectives. On the other hand, reinforcement learning additionally learns these models based on the feedback the agent gets from the environment. This book provides a concise introduction to the use of MDPs for solving probabilistic planning problems, with an emphasis on the algorithmic perspective. It covers the whole spectrum of the field, from the basics to state-of-the-art optimal and approximation algorithms. We first describe the theoretical foundations of MDPs and the fundamental solution techniques for them. We then discuss modern optimal algorithms based on heuristic search and the use of structured representations. A major focus of the book is on the numerous approximation schemes for MDPs that have been developed in the AI literature. These include determinization-based approaches, sampling techniques, heuristic functions, dimensionality reduction, and hierarchical representations. Finally, we briefly introduce several extensions of the standard MDP classes that model and solve even more complex planning problems. Table of Contents: Introduction / MDPs / Fundamental Algorithms / Heuristic Search Algorithms / Symbolic Algorithms / Approximation Algorithms / Advanced Notes

Cloud Analytics with Microsoft Azure

Engineering MLOps

Dual Learning
An Introduction to Silent Speech Interfaces
ETL techniques to load and transform data from various sources, both on-premises and on cloud
Rapidly build, test, and manage production-ready machine learning life cycles at scale
Introducing Microsoft Power BI

Learn Azure in a Month of Lunches, Second Edition, is a tutorial on writing, deploying, and running applications in Azure. In it, you'll work through 21 short lessons that give you real-world experience. Each lesson includes a hands-on lab so you can try out and lock in your new skills. Summary You can be incredibly productive with Azure without mastering every feature, function, and service. Learn Azure in a Month of Lunches, Second Edition gets you up and running quickly, teaching you the most important concepts and tasks in 21 practical bite-sized lessons. As you explore the examples, exercises, and labs, you'll pick up valuable skills immediately and take your first steps to Azure mastery! This fully revised new edition covers core changes to the Azure UI, new Azure features, Azure containers, and the upgraded Azure Kubernetes Service. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Microsoft Azure is vast and powerful, offering virtual servers, application templates, and prebuilt services for everything from data storage to AI. To navigate it all, you need a trustworthy guide. In this book, Microsoft engineer and Azure trainer Iain Foulds focuses on core skills for creating cloud-based applications. About the book Learn Azure in a Month of Lunches, Second Edition, is a tutorial on writing, deploying, and running applications in Azure. In it, you'll work through 21 short lessons that give you real-world experience. Each lesson includes a hands-on lab so you can try out and lock in your new skills. What's inside Understanding Azure beyond point-and-click Securing applications and data Automating your environment Azure services for machine learning, containers, and more About the reader This book is for readers who can write and deploy simple web or client/server applications. About the author Iain Foulds is an engineer and senior content developer with Microsoft. Table of Contents PART 1 - AZURE CORE SERVICES 1 Before you begin 2 Creating a virtual machine 3 Azure Web Apps 4 Introduction to Azure Storage 5 Azure Networking basics PART 2 - HIGH AVAILABILITY AND SCALE 6 Azure Resource Manager 7 High availability and redundancy 8 Load-balancing applications 9 Applications that scale 10 Global databases with Cosmos DB 11 Managing network traffic and routing 12 Monitoring and troubleshooting PART 3 - SECURE BY DEFAULT 13 Backup, recovery, and replication 14 Data encryption 15 Securing information with Azure Key Vault 16 Azure Security Center and updates PART 4 - THE COOL STUFF 17 Machine learning and artificial intelligence 18 Azure Automation 19 Azure containers 20 Azure and the Internet of Things 21 Serverless computing

Microsoft Azure HDInsight is Microsoft's 100 percent compliant distribution of Apache Hadoop on Microsoft Azure. This means that standard Hadoop concepts and technologies apply, so learning the Hadoop stack helps you learn the HDInsight service. At the time of this writing, HDInsight (version 3.0) uses Hadoop version 2.2 and Hortonworks Data Platform 2.0. In Introducing Microsoft Azure HDInsight, we cover what big data really means, how you can use it to your advantage in your company or organization, and one of the services you can use to do that quickly-specifically, Microsoft's HDInsight service. We start with an overview of big data and Hadoop, but we don't emphasize only concepts in this book-we want you to jump in and get your hands dirty working with HDInsight in a practical way. To help you learn and even implement HDInsight right away, we focus on a specific use case that applies to almost any organization and demonstrate a process that you can follow along with. We also help you learn more. In the last chapter, we look ahead at the future of HDInsight and give you recommendations for self-learning so that you can dive deeper into important concepts and round out your education on working with big data.

Understand and learn the skills needed to use modern tools in Microsoft Azure. This book discusses how to practically apply these tools in the industry, and help drive the transformation of organizations into a knowledge and data-driven entity. It provides an end-to-end understanding of data science life cycle and the techniques to efficiently productionize workloads. The book starts with an introduction to data science and discusses the statistical techniques data scientists should know. You'll then move on to machine learning in Azure where you will review the basics of data preparation and engineering, along with Azure ML service and automated machine learning. You'll also explore Azure Databricks and learn how to deploy, create and manage the same. In the final chapters you'll go through machine learning operations in Azure followed by the practical implementation of artificial intelligence through machine learning. Data Science Solutions on Azure will reveal how the different Azure services work together using real life scenarios and how-to-build solutions in a single comprehensive cloud ecosystem. What You'll Learn Understand big data analytics with Spark in Azure Databricks Integrate with Azure services like Azure Machine Learning and Azure Synaps Deploy, publish and monitor your data science workloads with MLOps Review data abstraction, model management and versioning with GitHub Who This Book Is For Data Scientists looking to deploy end-to-end solutions on Azure with latest tools and techniques.

Microsoft Azure Essentials from Microsoft Press is a series of free ebooks designed to help you

advance your technical skills with Microsoft Azure. This third ebook in the series introduces Microsoft Azure Machine Learning, a service that a developer can use to build predictive analytics models (using training datasets from a variety of data sources) and then easily deploy those models for consumption as cloud web services. The ebook presents an overview of modern data science theory and principles, the associated workflow, and then covers some of the more common machine learning algorithms in use today. It builds a variety of predictive analytics models using real world data, evaluates several different machine learning algorithms and modeling strategies, and then deploys the finished models as machine learning web services on Azure within a matter of minutes. The ebook also expands on a working Azure Machine Learning predictive model example to explore the types of client and server applications you can create to consume Azure Machine Learning web services. Watch Microsoft Press's blog and Twitter (@MicrosoftPress) to learn about other free ebooks in the Microsoft Azure Essentials series.

Develop Scalable Models Using Serverless Architectures with Azure

Hands-On Machine Learning with Azure

Build modern data warehouses with the combined power of analytics and Azure

Learn Azure in a Month of Lunches, Second Edition

Data Science Solutions on Azure

Build powerful models with cognitive machine learning and artificial intelligence

Foundations of Data Science

This book provides an introduction to machine learning and cloud computing, both from a conceptual level, along with their usage with underlying infrastructure. The authors emphasize fundamentals and best practices for using AI and ML in a dynamic infrastructure with cloud computing and high security, preparing readers to select and make use of appropriate techniques. Important topics are demonstrated using real applications and case studies.

Develop smart applications without spending days and weeks building machine-learning models. With this practical book, you'll learn how to apply automated machine learning (AutoML), a process that uses machine learning to help people build machine learning models. Deepak Mukunthu, Parashar Shah, and Wee Hyong Tok provide a mix of technical depth, hands-on examples, and case studies that show how customers are solving real-world problems with this technology. Building machine-learning models is an iterative and time-consuming process. Even those who know how to create ML models may be limited in how much they can explore. Once you complete this book, you'll understand how to apply AutoML to your data right away. Learn how companies in different industries are benefiting from AutoML Get started with AutoML using Azure Explore aspects such as algorithm selection, auto featurization, and hyperparameter tuning Understand how data analysts, BI professions, developers can use AutoML in their familiar tools and experiences Learn how to get started using AutoML for use cases including classification, regression, and forecasting.

Many AI (and machine learning) tasks present in dual forms, e.g., English-to-Chinese translation vs. Chinese-to-English translation, speech recognition vs. speech synthesis,question answering vs. question generation, and image classification vs. image generation. Dual learning is a new learning framework that leverages the primal-dual structure of AI tasks to obtain effective feedback or regularization signals in order to enhance the learning/inference process. Since it was first introduced four years ago, the concept has attracted considerable attention in multiple fields, and been proven effective in numerous applications, such as machine translation, image-to-image translation, speech synthesis and recognition, (visual) question answering and generation, image captioning and generation, and code summarization and generation. Offering a systematic and comprehensive overview of dual learning, this book enables interested researchers (both established and newcomers) and practitioners to gain a better understanding of the state of the art in the field. It also provides suggestions for further reading and tools to help readers advance the area. The book is divided into five parts. The first part gives a brief introduction to machine learning and deep learning. The second part introduces the algorithms based on the dual reconstruction principle using machine translation, image translation, speech processing and other NLP/CV tasks as the demo applications. It covers algorithms, such as dual semi-supervised learning, dual unsupervised learning and multi-agent dual learning. In the context of image translation, it introduces algorithms including CycleGAN, DualGAN, DiscoGAN cdGAN and more recent techniques/applications. The third part presents various work based on the probability principle, including dual supervised learning and dual inference based on the joint-probability principle and dual semi-supervised learning based on the marginal-probability principle. The fourth part reviews various theoretical studies on dual learning and discusses its connections to other learning paradigms. The fifth part provides a summary and suggests future research directions.

This set of lecture notes, written for those who are unfamiliar with mathematics and programming, introduces the reader to important concepts in the field of machine learning. It consists of three parts. The first is an overview of the history of artificial intelligence, machine learning, and data science, and also includes case studies of well-known AI systems. The second is a step-by-step introduction to Azure Machine Learning, with examples provided. The third is an explanation of the techniques and methods used in data visualization with R, which can be used to communicate the results collected by the AI systems when they are analyzed statistically. Practice questions are provided throughout the book.

Automated Machine Learning with Microsoft Azure

Interpretable Machine Learning

Automatic Speech Recognition

Introduction to Machine Learning in the Cloud with Python

Predictive Analytics with Microsoft Azure Machine Learning

Machine Learning: Concepts, Tools And Data Visualization

Microsoft Azure Machine Learning

Learn to extract actionable insights from your big data in real time using a range of Microsoft Azure features Key FeaturesUpdated with the latest features and new additions to Microsoft AzureMaster the fundamentals of cloud analytics using AzureLearn to use Azure Synapse Analytics (formerly known as Azure SQL Data Warehouse) to derive real-time customer insightsBook Description Cloud Analytics with Microsoft Azure serves as a comprehensive guide for big data analysis and processing using a range of Microsoft Azure features. This book covers everything you need to build your own data warehouse and learn numerous techniques to gain useful insights by analyzing big data The book

begins by introducing you to the power of data with big data analytics, the Internet of Things (IoT), machine learning, artificial intelligence, and DataOps. You will learn about cloud-scale analytics and the services Microsoft Azure offers to empower businesses to discover insights. You will also be introduced to the new features and functionalities added to the modern data warehouse. Finally, you will look at two real-world business use cases to demonstrate high-level solutions using Microsoft Azure. The aim of these use cases will be to illustrate how real-time data can be analyzed in Azure to derive meaningful insights and make business decisions. You will learn to build an end-to-end analytics pipeline on the cloud with machine learning and deep learning concepts. By the end of this book, you will be proficient in analyzing large amounts of data with Azure and using it effectively to benefit your organization. What you will learnExplore the concepts of modern data warehouses and data pipelinesDiscover unique design considerations while applying a cloud analytics solutionDesign an end-to-end analytics pipeline on the cloudDifferentiate between structured, semi-structured, and unstructured dataChoose a cloud-based service for your data analytics solutionsUse Azure services to ingest, store, and analyze data of any scaleWho this book is for This book is designed to benefit software engineers, Azure developers, cloud consultants, and anyone who is keen to learn the process of deriving business insights from huge amounts of data using Azure. Though not necessary, a basic understanding of data analytics concepts such as data streaming, data types, the machine learning life cycle, and Docker containers will help you get the most out of the book.

Get to grips with automated machine learning and adopt a hands-on approach to AutoML implementation and associated methodologies Key FeaturesGet up to speed with AutoML using OSS, Azure, AWS, GCP, or any platform of your choiceEliminate mundane tasks in data engineering and reduce human errors in machine learning modelsFind out how you can make machine learning accessible for all users to promote decentralized processesBook Description Every machine learning engineer deals with systems that have hyperparameters, and the most basic task in automated machine learning (AutoML) is to automatically set these hyperparameters to optimize performance. The latest deep neural networks have a wide range of hyperparameters for their architecture, regularization, and optimization, which can be customized effectively to save time and effort. This book reviews the underlying techniques of automated feature engineering, model and hyperparameter tuning, gradient-based approaches, and much more. You'll discover different ways of implementing these techniques in open source tools and then learn to use enterprise tools for implementing AutoML in three major cloud service providers: Microsoft Azure, Amazon Web Services (AWS), and Google Cloud Platform. As you progress, you'll explore the features of cloud AutoML platforms by building machine learning models using AutoML. The book will also show you how to develop accurate models by automating time-consuming and repetitive tasks in the machine learning development lifecycle. By the end of this machine learning book, you'll be able to build and deploy AutoML models that are not only accurate, but also increase productivity, allow interoperability, and minimize feature engineering tasks. What you will learnExplore AutoML fundamentals, underlying methods, and techniquesAssess AutoML aspects such as algorithm selection, auto featurization, and hyperparameter tuning in an applied scenarioFind out the difference between cloud and operations support systems (OSS)Implement AutoML in enterprise cloud to deploy ML models and pipelinesBuild explainable AutoML pipelines with transparencyUnderstand automated feature engineering and time series forecastingAutomate data science modeling tasks to implement ML solutions easily and focus on more complex problemsWho this book is for Citizen data scientists, machine learning developers, artificial intelligence enthusiasts, or anyone looking to automatically build machine learning models using the features offered by open source tools, Microsoft Azure Machine Learning, AWS, and Google Cloud Platform will find this book useful. Beginner-level knowledge of building ML models is required to get the best out of this book. Prior experience in using Enterprise cloud is beneficial.

Master machine learning concepts and develop real-world solutions Machine learning offers immense opportunities, and Introducing Machine Learning delivers practical knowledge to make the most of them. Dino and Francesco Esposito start with a quick overview of the foundations of artificial intelligence and the basic steps of any machine learning project. Next, they introduce Microsoft's powerful ML.NET library, including capabilities for data processing, training, and evaluation. They present families of algorithms that can be trained to solve real-life problems, as well as deep learning techniques utilizing neural networks. The authors conclude by introducing valuable runtime services available through the Azure cloud platform and consider the long-term business vision for machine learning. · 14-time Microsoft MVP Dino Esposito and Francesco Esposito help you · Explore what's known about how humans learn and how intelligent software is built · Discover which problems machine learning can address · Understand the machine learning pipeline: the steps leading to a deliverable model · Use AutoML to automatically select the best pipeline for any problem and dataset · Master ML.NET, implement its pipeline, and apply its tasks and algorithms · Explore the mathematical foundations of machine learning · Make predictions, improve decision-making, and apply probabilistic methods · Group data via classification and clustering · Learn the fundamentals of deep learning, including neural network design · Leverage AI cloud services to build better real-world solutions faster About This Book · For professionals who want to build machine learning applications: both developers who need data science skills and data scientists who need relevant programming skills · Includes examples of machine learning coding scenarios built using the ML.NET library

This book provides you with the skills necessary to get started with Azure Machine Learning to build predictive models as quickly as possible, in a very intuitive way, whether you are completely new to

predictive analysis or an existing practitioner. The book starts by exploring ML Studio, the browser-based development environment, and explores the first step—data exploration and visualization. You will then build different predictive models using both supervised and unsupervised algorithms, including a simple recommender system. The focus then shifts to learning how to deploy a model to production and publishing it as an API. The book ends with a couple of case studies using all the concepts and skills you have learned throughout the book to solve real-world problems.

Automated Machine Learning

Introducing Microsoft SQL Server 2016

Building and Deploying Artificial Intelligence Solutions on the Microsoft AI Platform

Mastering Azure Machine Learning

Explore deep learning concepts and implement over 50 real-world image applications

Perform large-scale end-to-end advanced machine learning in the cloud with Microsoft Azure Machine Learning

Introducing Microsoft System Center 2012 R2

Master Powerful Off-the-Shelf Business Solutions for AI and Machine Learning Pragmatic AI will help you solve real-world problems with contemporary machine learning, artificial intelligence, and cloud computing tools. Noah Gift demystifies all the concepts and tools you need to get results—even if you don't have a strong background in math or data science. Gift illuminates powerful off-the-shelf cloud offerings from Amazon, Google, and Microsoft, and demonstrates proven techniques using the Python data science ecosystem. His workflows and examples help you streamline and simplify every step, from deployment to production, and build exceptionally scalable solutions. As you learn how machine language (ML) solutions work, you'll gain a more intuitive understanding of what you can achieve with them and how to maximize their value. Building on these fundamentals, you'll walk step-by-step through building cloud-based AI/ML applications to address realistic issues in sports marketing, project management, product pricing, real estate, and beyond. Whether you're a business professional, decision-maker, student, or programmer, Gift's expert guidance and wide-ranging case studies will prepare you to solve data science problems in virtually any environment. Get and configure all the tools you'll need Quickly review all the Python you need to start building machine learning applications Master the AI and ML toolchain and project lifecycle Work with Python data science tools such as IPython, Pandas, Numpy, Juypter Notebook, and Sklearn Incorporate a pragmatic feedback loop that continually improves the efficiency of your workflows and systems Develop cloud AI solutions with Google Cloud Platform, including TPU, Colaboratory, and Datalab services Define Amazon Web Services cloud AI workflows, including spot instances, code pipelines, boto, and more Work with Microsoft Azure AI APIs Walk through building six real-world AI applications, from start to finish Register your book for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details.

Master expert techniques for building automated and highly scalable end-to-end machine learning models and pipelines in Azure using TensorFlow, Spark, and Kubernetes Key FeaturesMake sense of data on the cloud by implementing advanced analyticsTrain and optimize advanced deep learning models efficiently on Spark using Azure DatabricksDeploy machine learning models for batch and real-time scoring with Azure Kubernetes Service (AKS)Book Description The increase being seen in data volume today requires distributed systems, powerful algorithms, and scalable cloud infrastructure to compute insights and train and deploy machine learning (ML) models. This book will help you improve your knowledge of building ML models using Azure and end-to-end ML pipelines on the cloud. The book starts with an overview of an end-to-end ML project and a guide on how to choose the right Azure service for different ML tasks. It then focuses on Azure Machine Learning and takes you through the process of data experimentation, data preparation, and feature engineering using Azure Machine Learning and Python. You'll learn advanced feature extraction techniques using natural language processing (NLP), classical ML techniques, and the secrets of both a great recommendation engine and a performant computer vision model using deep learning methods. You'll also explore how to train, optimize, and tune models using Azure Automated Machine Learning and HyperDrive, and perform distributed training on Azure. Then, you'll learn different deployment and monitoring techniques using Azure Kubernetes Services with Azure Machine Learning, along with the basics of MLOps—DevOps for ML to automate your ML process as CI/CD pipeline. By the end of this book, you'll have mastered Azure Machine Learning and be able to confidently design, build and operate scalable ML pipelines in Azure. What you will learnSetup your Azure Machine Learning workspace for data experimentation and visualizationPerform ETL, data preparation, and feature extraction using Azure best practicesImplement advanced feature extraction using NLP and word embeddingsTrain gradient boosted tree-ensembles, recommendation engines and deep neural networks on Azure Machine LearningUse hyperparameter tuning and Azure Automated Machine Learning to optimize your ML modelsEmploy distributed ML on GPU clusters using Horovod in Azure Machine LearningDeploy, operate and manage your ML models at scaleAutomated your end-to-end ML process as CI/CD pipelines for MLOpsWho this book is for This machine learning book is for data professionals, data analysts, data engineers, data scientists, or machine learning developers who want to master scalable cloud-based machine learning architectures in Azure. This book will help you use advanced Azure services to build intelligent machine learning applications. A basic understanding of Python and working knowledge

of machine learning are mandatory.
We're thrilled to share another free ebook with you: Introducing Microsoft Azure HDInsight, by Avkash Chauhan, Valentine Fontama, Michele Hart, Wee Hyong Tok, and Buck Woody. Here are the download links: Download the PDF (6.37 MB; 130 pages) from http://aka.ms/IntroHDInsight/PDF Download the EPUB (8.46 MB) from http://aka.ms/IntroHDInsight/EPUB Download the MOBI (12.8 MB) from http://aka.ms/IntroHDInsight/MOBI Download the code samples (6.83 KB) from http://aka.ms/IntroHDInsight/CompContent Get a head start evaluating Windows Azure - with technical insights from a Microsoft MVP Mitch Tulloch. This guide introduces the latest features and capabilities, with scenario-based advice on how the platform can meet the needs of your business. Get the high-level overview you need to begin preparing your deployment now. Topics include: Understanding Windows Azure Windows Azure Compute Services Windows Azure Network Services Windows Azure Data Services Windows Azure App Services Getting Started with Windows Azure
This book provides a comprehensive overview of the recent advancement in the field of automatic speech recognition with a focus on deep learning models including deep neural networks and many of their variants. This is the first automatic speech recognition book dedicated to the deep learning approach. In addition to the rigorous mathematical treatment of the subject, the book also presents insights and theoretical foundation of a series of highly successful deep learning models.
Introducing Microsoft SQL Server 2019
Introducing Windows Azure for IT Professionals
An Introduction to Cloud-Based Machine Learning
Pragmatic AI
Hands-On Data Warehousing with Azure Data Factory
Introduction to Machine Learning with Python
Predictive Analytics with Microsoft Azure Machine Learning 2nd Edition
Predictive Analytics with Microsoft Azure Machine Learning, Second Edition is a practical tutorial introduction to the field of data science and machine learning, with a focus on building and deploying predictive models. The book provides a thorough overview of the Microsoft Azure Machine Learning service released for general availability on February 18th, 2015 with practical guidance for building recommenders, propensity models, and churn and predictive maintenance models. The authors use task oriented descriptions and concrete end-to-end examples to ensure that the reader can immediately begin using this new service. The book describes all aspects of the service from data ingress to applying machine learning, evaluating the models, and deploying them as web services. Learn how you can quickly build and deploy sophisticated predictive models with the new Azure Machine Learning from Microsoft. What's New in the Second Edition? Five new chapters have been added with practical detailed coverage of: Python Integration - a new feature announced February 2015 Data preparation and feature selection Data visualization with Power BI Recommendation engines Selling your models on Azure Marketplace.
Get up-to-speed with Microsoft's AI Platform. Learn to innovate and accelerate with open and powerful tools and services that bring artificial intelligence to every data scientist and developer. Artificial Intelligence (AI) is the new normal. Innovations in deep learning algorithms and hardware are happening at a rapid pace. It is no longer a question of should I build AI into my business, but more about where do I begin and how do I get started with AI?Written by expert data scientists at Microsoft, Deep Learning with the Microsoft AI Platform helps you with the how-to of doing deep learning on Azure and leveraging deep learning to create innovative and intelligent solutions. Benefit from guidance on where to begin your AI adventure, and learn how the cloud provides you with all the tools, infrastructure, and services you need to do AI. What You'll LearnBecome familiar with the tools, infrastructure, and services available for deep learning on Microsoft Azure such as Azure Machine Learning services and Batch AIUse pre-built AI capabilities (Computer Vision, OCR, gender, emotion, landmark detection, and more)Understand the common deep learning models, including convolutional neural networks (CNNs), recurrent neural networks (RNNs), generative adversarial networks (GANs) with sample code and understand how the field is evolvingDiscover the options for training and operationalizing deep learning models on Azure Who This Book Is ForProfessional data scientists who are interested in learning more about deep learning and how to use the Microsoft AI platform. Some experience with Python is helpful.
Leverage the power of Azure to get efficient data insights from your big data in real time Key Features Explore the basics of cloud analytics using Azure Discover different ways to process and visualize your data easily Learn to use Azure Synapse Analytics (formerly known as Azure SQL Data Warehouse) to derive real-time customer insights Book Description With data being generated at an exponential speed, organizations all over the world are migrating their infrastructure to the cloud. Application management becomes much easier when you use a cloud platform to build, manage, and deploy your services and applications. Cloud Analytics with Microsoft Azure covers all that you need to extract useful insights from your data. You'll explore the power of data with big data analytics, the Internet of Things (IoT), machine learning, artificial intelligence, and DataOps. You'll also delve into data analytics by studying use cases that focus on creating actionable insights from near-real-time data. As you advance, you'll learn to build an end-to-end analytics pipeline on the cloud with machine learning and deep learning concepts. By the end of this book, you'll have developed a solid understanding of data analytics with Azure and its practical implementation. What you will learn Explore the concepts of modern data warehouses and data pipelines Discover different design considerations while applying a cloud analytics solution Design an end-to-end analytics pipeline on the cloud Differentiate between structured, semi-structured, and unstructured data Choose a cloud-based service for your data analytics solutions Use Azure services to ingest,

store and analyze data of any scale Who this book is for If you’re planning to adopt the cloud analytics model for your business, this book will help you understand the design and business considerations that you must keep in mind. Though not necessary, a basic understanding of data analytics concepts such as data streaming, data types, the machine learning life cycle, and Docker containers will help you get the most out of the book.
This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. Introducing Microsoft Power BI enables you to evaluate when and how to use Power BI. Get inspired to improve business processes in your company by leveraging the available analytical and collaborative features of this environment. Be sure to watch for the publication of Alberto Ferrari and Marco Russo's upcoming retail book, Analyzing Data with Power BI and Power Pivot for Excel (ISBN 9781509302765). Go to the book's page at the Microsoft Press Store here for more details:http://aka.ms/analyzingdata/details. Learn more about Power BI at https://powerbi.microsoft.com/.
Using Azure Machine Learning to Quickly Build AI Solutions
Reliability, scalability, and security both on premises and in the cloud
Concepts and Practices
Introducing MLOps
Hyperparameter optimization, neural architecture search, and algorithm selection with cloud platforms
This book provides an introduction to the mathematical and algorithmic foundations of data science, including machine learning, high-dimensional geometry, and analysis of large networks. Topics include the counterintuitive nature of data in high dimensions, important linear algebraic techniques such as singular value decomposition, the theory of random walks and Markov chains, the fundamentals of and important algorithms for machine learning, algorithms and analysis for clustering, probabilistic models for large networks, representation learning including topic modelling and non-negative matrix factorization, wavelets and compressed sensing. Important probabilistic techniques are developed including the law of large numbers, tail inequalities, analysis of random projections, generalization guarantees in machine learning, and moment methods for analysis of phase transitions in large random graphs. Additionally, important structural and complexity measures are discussed such as matrix norms and VC-dimension. This book is suitable for both undergraduate and graduate courses in the design and analysis of algorithms for data.
Leverage the power of Microsoft Azure Data Factory v2 to build hybrid data solutions Key Features Combine the power of Azure Data Factory v2 and SQL Server Integration Services Design and enhance performance and scalability of a modern ETL hybrid solution Interact with the loaded data in data warehouse and data lake using Power BI Book Description ETL is one of the essential techniques in data processing. Given data is everywhere, ETL will always be the vital process to handle data from different sources. Hands-On Data Warehousing with Azure Data Factory starts with the basic concepts of data warehousing and ETL process. You will learn how Azure Data Factory and SSIS can be used to understand the key components of an ETL solution. You will go through different services offered by Azure that can be used by ADF and SSIS, such as Azure Data Lake Analytics, Machine Learning and Databrick’s Spark with the help of practical examples. You will explore how to design and implement ETL hybrid solutions using different integration services with a step-by-step approach. Once you get to grips with all this, you will use Power BI to interact with data coming from different sources in order to reveal valuable insights. By the end of this book, you will not only learn how to build your own ETL solutions but also address the key challenges that are faced while building them. What you will learn Understand the key components of an ETL solution using Azure Data Factory and Integration Services Design the architecture of a modern ETL hybrid solution Implement ETL solutions for both on-premises and Azure data Improve the performance and scalability of your ETL solution Gain thorough knowledge of new capabilities and features added to Azure Data Factory and Integration Services Who this book is for This book is for you if you are a software professional who develops and implements ETL solutions using Microsoft SQL Server or Azure cloud. It will be an added advantage if you are a software engineer, DW/ETL architect, or ETL developer, and know how to create a new ETL implementation or enhance an existing one with ADF or SSIS.
Microsoft Azure Essentials from Microsoft Press is a series of free ebooks designed to help you advance your technical skills with Microsoft Azure. The first ebook in the series, Microsoft Azure Essentials: Fundamentals of Azure, introduces developers and IT professionals to the wide range of capabilities in Azure. The authors - both Microsoft MVPs in Azure - present both conceptual and how-to content for key areas, including: Azure Websites and Azure Cloud Services Azure Virtual Machines Azure Storage Azure Virtual Networks Databases Azure Active Directory Management tools Business scenarios Watch Microsoft Press’s blog and Twitter (@MicrosoftPress) to learn about other free ebooks in the “Microsoft Azure Essentials” series.