



theoretical introduction and an overview, backed by programming examples. For demonstration, the authors use the IoT platform VICINITY, which is open-source, free, and offers leading standards for privacy. Presents readers with a coherent single-source introduction into the IoT; Introduces selected, hot-topics of IoT, including GDPR (European legislation on data protection), and homomorphic encryption; Provides coding examples for most topics that allow the reader to kick-start his own IoT applications, smart services, etc.

Finding the power of MEAN (MongoDB, Express, Angular, and Node) stack to build modern web application. This book helps you how to develop web application based MEAN stack with hands-on-lab approach. The book volume 1 explores how to get started with MEAN stack with several code samples. The following is highlight topics in this book: \* Preparing Development Environment \* Basic Routing \* Input and Form Handling \* Data Binding and Templates \* MongoDB Data Modeling \* Express Routes and Middleware \* Cookie and Session \* Error handling \* Building RESTful Application \* Data paging

Node.js supports both client and server side applications. It is based on JavaScript and is very fast in operation. These distinctive features made node.js as one of the most powerful framework in the Java Ecosystem. JavaScript alone allows you to build real-time and scalable mobile and web applications. With this e-book, you will explore more on the node.js framework and how to use it efficiently for web development. Average developers or beginners who struggle to understand node.js basics will find this book very helpful and productive. The book tried to put examples that simplify problems usually faced by the users like how asynchronous code works, what are modules, how big file can be read, node.js express, etc. You will find that lots of concepts that take a long time to master can be learned in a day or two. If this is your first interaction with node.js and don't want all sort of troubles that arise with the node, this edition is recommended. After going through this e-book, node.js will become an absolute pleasure. Table of content Chapter 1: Introduction 1. Introduction to Node.js 2. What is Node.js? 3. Why use Node.js? 4. Features of Node.js 5. Who uses Node.js 6. When to Use Node.js 7. When to not use Node.js Chapter 2: How to Download & Install Node.js - NPM on Windows 1. How to install Node.js on Windows 2. Installing NPM (Node Package Manager) on Windows 3. Running your first Hello World application in Node.js Chapter 3: Node.js NPM Tutorial: Create, Publish, Extend & Manage 1. What are modules in Node.js? 2. Using modules in Node.js 3. Creating NPM modules 4. Extending modules 5. Publishing NPM(Node Package Manager) Modules 6. Managing third party packages with npm 7. What is the package.json file Chapter 4: Create HTTP Web Server in Node.js: Complete Tutorial 1. Node as a web server using HTTP 2. Handling GET Requests in Node.js Chapter 5: Node.js Express Framework Tutorial 1. What is Express.js? 2. Installing and using Express 3. What are Routes? 4. Sample Web server using express.js Chapter 6: Node.js MongoDB Tutorial with Examples 1. Node.js and NoSQL Databases 2. Using MongoDB and Node.js 3. How to build a node express app with MongoDB to store and serve content Chapter 7: Node.js Promise Tutorial 1. What are promises? 2. Callbacks to promises 3. Dealing with nested promises 4. Creating a custom promise Chapter 8: Bluebird Promises Tutorial Chapter 9: Node.js Generators & Compare with Callbacks 1. What are generators? 2. Callbacks vs. generators Chapter 10: Node.js Streams Tutorial: Filestream, Pipes 1. Filestream in Node.js 2. Pipes in Node.js 3. Events in Node.js 4. Emitting Events Chapter 11: Node.js Unit Testing Tutorial with Jasmine 1. Overview of Jasmine for testing Node.js applications 2. How to use Jasmine to test Node.js applications Chapter 12: Node.js Vs AngularJS: Know the Difference 1. What is Node JS? 2. What is Angular JS? 3. Node JS VS. Angular JS 4. What Is Better Node JS Or Angular JS? Chapter 13: Node.js Vs Python: What's the Difference? 1. What is Node.js? 2. What is Python? 3. Node.js Vs. Python 4. When to use Node.js? 5. When to use Python?

Teaches you to start up Nginx and quickly take your expertise to a level where you can comfortably work with various aspects of the web server and make informed design decisions for your web farm. Nginx powers more than 40% of the top 1000 websites and is among the handful of web servers that can handle more than 10K simultaneous connections. It has some features which are simply unparalleled. Nginx: From Beginner to Pro teaches the Nginx server in a practical way. Frequently, it is found that web administrators struggle to fix the skill set gaps that happen due to a platform change. Migration from IIS & Apache becomes tedious at best. The book is targeted toward real-world administrators who would want to get up to speed as soon as possible and make good, informed design decisions. First you will set up Nginx and understand the architectural nuances. Then you will learn how to scale out, secure, monitor and troubleshoot the web server. Once you are fully comfortable with Nginx, you will start learning about migrating applications (or its part) from IIS or Apache web servers. Finally, you will learn to troubleshoot and maintain your Nginx professionally. Written by an author who has gone through the rough phase while moving from IIS/Apache to Nginx, this book is practical and filled with step-by-step instructions to make your time with Nginx as straightforward as possible. What You Will Learn Install and set up Nginx on CentOS, Ubuntu & Mac. Understand Nginx modules and compiling Nginx with appropriate modules. Learn about basic configuration and architecture along with hosting nuances. Load balance Nginx and use it as a highly available web platform. Monitor traffic and automate common administrative tasks. Use scripts to perform routine checks for health issues. Implement security and authentication in Nginx. Learn how and what to migrate from IIS & Apache web servers. Who This Book Is For Provides a crisp background of Nginx and then gears towards technical and practical topics. You need to know HTTP protocol, and have basic knowledge of Linux and networking concepts. The target audience is web administrators who would like to learn the finer nuances of Nginx, or map their existing skillset from IIS or Apache.

Build an interactive and full-featured web application from scratch using Node.js and MongoDB About This Book Configure your development environment to use Node.js and MongoDB Use Node.js to connect to a MongoDB database and perform data manipulations A practical guide with clear instructions to design and develop a complete web application from start to finish Who This Book Is For This book is designed for JavaScript developers of any skill level that

want to get up and running using Node.js and MongoDB to build full-featured web applications. A basic understanding of JavaScript and HTML is the only requirement for this book. What You Will Learn Configure your development environment to use Node.js and MongoDB Write and configure a web server using Node.js powered by the Express.js framework Build dynamic HTML pages using the Handlebars template engine Persist application data using MongoDB and Mongoose ODM Test your code using automated testing tools such as the Mocha framework Deploy the development environment to the cloud using services such as Heroku, Amazon Web Services, and Microsoft Azure Explore Single-Page application frameworks to take your web applications to the next level In Detail Node.js and MongoDB are quickly becoming one of the most popular tech stacks for the web. Powered by Google's V8 engine, Node.js caters to easily building fast, scalable network applications while MongoDB is the perfect fit as a scalable, high-performance, open source NoSQL database solution. Using these two technologies together, web applications can be built quickly and easily and deployed to the cloud with very little difficulty. The book will begin by introducing you to the groundwork needed to set up the development environment. Here, you will quickly run through the steps necessary to get the main application server up and running. Then you will see how to use Node.js to connect to a MongoDB database and perform data manipulations. From here on, the book will take you through integration with third-party tools for interaction with web apps. It then moves on to show you how to use controllers and view models to generate reusable code that will reduce development time. Toward the end of the book, we will cover tests to properly execute the code and some popular frameworks for developing web applications. By the end of the book, you will have a running web application developed with MongoDB and Node.js along with its popular frameworks. Style and approach An easy guide to Node.js and MongoDB, which will quickly introduce you to the relevant concepts by taking you through the different steps involved in building a full-fledged web application.

This book describes various new computer based approaches which can be exploited for the (digital) reconstruction, recognition, restoration, presentation and classification of digital heritage. They are based on applications of virtual reality, augmented reality and artificial intelligence, to be used for storing and retrieving of historical artifacts, digital reconstruction, or virtual viewing. The book is divided into three sections: "Classification of Heritage Data" presents chapters covering various domains and aspects including text categorization, image retrieval and classification, and object spotting in historical documents. Next, in "Detection and Recognition of Digital Heritage Artifacts", techniques like neural networks or deep learning are used for the restoration of degraded heritage documents, Tamil Palm Leaf Characters recognition, the reconstruction of heritage images, and the selection of suitable images for 3D reconstruction and classification of Indian land mark heritage images. Lastly, "Applications of Modern Tools in Digital Heritage" highlights some example applications for dance transcription, architectural geometry of early temples by digital reconstruction, and computer vision based techniques for collecting and integrating knowledge on flora. This book is mainly written for researchers and graduate students in digital preservation and heritage, or computer scientists looking for applications of virtual reality, computer vision, and artificial intelligence techniques.

Provides information for building dynamic, high performance websites and Web applications completely in JavaScript, from server to client, using the Node.js, MongoDB, and AngularJS Web development technologies.

If you are a web developer who has a basic understanding of Ruby on Rails, this is the book for you. You should definitely have previous knowledge about HTML and how it works. However, CSS and JavaScript knowledge is optional for this book.

This book presents the proceedings of the 19th International Conference on Interactive Collaborative Learning, held 21-23 September 2016 at Clayton Hotel in Belfast, UK. We are currently witnessing a significant transformation in the development of education. The impact of globalisation on all areas of human life, the exponential acceleration of developments in both technology and the global markets, and the growing need for flexibility and agility are essential and challenging elements of this process that have to be addressed in general, but especially in the context of engineering education. To face these topical and very real challenges, higher education is called upon to find innovative responses. Since being founded in 1998, this conference has consistently been devoted to finding new approaches to learning, with a focus on collaborative learning. Today the ICL conferences have established themselves as a vital forum for the exchange of information on key trends and findings, and of practical lessons learned while developing and testing elements of new technologies and pedagogies in learning.

Expand Raspberry Pi capabilities with fundamental engineering principles Exploring Raspberry Pi is the innovators guide to bringing Raspberry Pi to life. This book favors engineering principles over a 'recipe' approach to give you the skills you need to design and build your own projects. You'll understand the fundamental principles in a way that transfers to any type of electronics, electronic modules, or external peripherals, using a "learning by doing" approach that caters to both beginners and experts. The book begins with basic Linux and programming skills, and helps you stock your inventory with common parts and supplies. Next, you'll learn how to make parts work together to achieve the goals of your project, no matter what type of components you use. The companion website provides a full repository that structures all of the code and scripts, along with links to video tutorials and supplementary content that takes you deeper into your project. The Raspberry Pi's most famous feature is its adaptability. It can be used for thousands of electronic applications, and using the Linux OS expands the functionality even more. This book helps you get the most from your Raspberry Pi, but it also gives you the fundamental engineering skills you need to incorporate any electronics into any project. Develop the Linux and programming skills you need to build basic applications Build your inventory of parts so you can always "make it work" Understand interfacing, controlling, and communicating with almost any component Explore advanced applications with video, audio, real-world interactions, and more Be free to adapt and create with Exploring Raspberry Pi. The book 'Data Intensive Computing Applications for Big Data' discusses the technical concepts of big data, data



JavaScript as a server-side language coupled with the use of NoSQL databases has seen an emergence in recent years with the creation of Node.js and NoSQL databases, such as MongoDB. The purpose of this thesis is to act as a case study to determine the performance of Node.js as a web server along with a NoSQL database. Furthermore, it will seek to determine what benefits, if any, there are to using the AngularJS framework with Node.js to create a single-page application over a traditional web application. We herein describe the process of porting over an existing web-based MongoDB administration interface written in Node.js and Express to a complete MEAN stack implementation while following best practices, the design, execution, and results of benchmark tests. In particular, we investigate the ability of Node.js as a web server to deliver html content as opposed to JSON-formatted content. Furthermore, we evaluate the performance impact of AngularJS. Analysis of the results showed that Node.js performed better when returning JSON-formatted data than HTML. Further, the AngularJS implementation consumed far more memory and CPU resources than the pure Node.js implementation.

This book includes selected papers presented at the 3rd International Conference on Data Engineering and Communication Technology (ICDECT-2K19), held at Stanley College of Engineering and Technology for Women, Hyderabad, from 15 to 16 March 2019. It features advanced, multidisciplinary research towards the design of smart computing, information systems, and electronic systems. It also focuses on various innovation paradigms in system knowledge, intelligence, and sustainability which can be applied to provide viable solutions to diverse problems related to society, the environment, and industry.

Este livro descreve, passo a passo, como criar sua própria aplicação de e-commerce, desenvolvida paralelamente ao processo de aprendizado e usando a tecnologia MEAN. Você aprenderá a desenvolver um site de e-commerce de alta qualidade e capaz de entrar em produção e terá condições e conhecimento para adicionar seus próprios recursos a ele. O livro começa apresentando a plataforma MEAN, depois segue um roteiro passo a passo para construir uma loja com o AngularJS, um banco de dados com o MongoDB, uma API do tipo REST e, então, mostra como “amarrar” tudo isso com o AngularJS. Você verá como gerenciar a autenticação dos usuários, verificar as múltiplas plataformas de pagamento, adicionar navegação e busca a produtos, fazer o deploy do site finalizado e, finalmente, adicionar recursos personalizados e específicos de alta qualidade. Ao término do livro, você será capaz de construir e usar seu próprio aplicativo de e-commerce no mundo real e adicionar seus próprios recursos a ele. Para quem este livro foi escrito Este livro é direcionado ao desenvolvedor web ou full stack em JavaScript que precisa desenvolver aplicações de e-commerce usando o MEAN. Algum conhecimento básico a respeito da tecnologia MEAN é altamente recomendado. Este livro ensina como

- Empregar o AngularJS para construir componentes de UI responsivos
- Conhecer e utilizar ferramentas de teste do AngularJS, como Jasmine, Karma e Protractor
- Implementar múltiplas estratégias de autenticação, como OAuth, JsonWebToken e Sessions
- Melhorar a usabilidade do website associando-o a redes sociais como Facebook, Twitter e Google
- Criar integração com plataformas de pagamento como o PayPal
- Implementar a funcionalidade de busca por texto no MongoDB
- Criar um sistema de categorização flexível para organizar os produtos da loja
- Implementar conexões seguras à aplicação usando certificados SSL e plataformas de pagamento nos ambientes de produção

Advances in medical technology increase both the efficacy and efficiency of medical practice, and mobile technologies enable modern doctors and nurses to treat patients remotely from anywhere in the world. This technology raises issues of quality of care and medical ethics, which must be addressed. E-Health and Telemedicine: Concepts, Methodologies, Tools, and Applications explores recent advances in mobile medicine and how this technology impacts modern medical care. Three volumes of comprehensive coverage on crucial topics in wireless technologies for enhanced medical care make this multi-volume publication a critical reference source for doctors, nurse practitioners, hospital administrators, and researchers and academics in all areas of the medical field. This seminal publication features comprehensive chapters on all aspects of e-health and telemedicine, including implementation strategies; use cases in cardiology, infectious diseases, and cytology, among others; care of individuals with autism spectrum disorders; and medical image analysis.

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Summary In Single Page Web Applications you'll learn to build modern browser-based apps that take advantage of stronger client platforms and more predictable bandwidth. You'll learn the SPA design approach, and then start exploring new techniques like structured JavaScript and responsive design. And you'll learn how to capitalize on trends like server-side JavaScript and NoSQL data stores, as well as new frameworks that make JavaScript more manageable and testable as a first-class language. About this Book If your website is a jumpy collection of linked pages, you are behind. Single page web applications are your next step: pushing UI rendering and business logic to the browser and communicating with the server only to synchronize data, they provide a smooth user experience, much like a native application. But, SPAs can be hard to develop, manage, and test. Single Page Web Applications shows how your team can easily design, test, maintain, and extend sophisticated SPAs using JavaScript end-to-end, without getting locked into a framework. Along the way, you'll develop advanced HTML5, CSS3, and JavaScript skills, and use JavaScript as the language of the web server and the database. This book assumes basic knowledge of web development. No experience with SPAs is required. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. What's Inside Design, build, and test a full-stack SPA Best-in-class tools like jQuery, TaffyDB, Node.js, and MongoDB Real-time web with web sockets and Socket.IO Touch controls for tablets and smartphones Common SPA design mistakes About the Authors The authors are architects and engineering managers. Michael Mikowski has worked on many commercial SPAs and a platform that processes over 100 billion requests per year. Josh Powell has built some of the most heavily trafficked sites on the web. Table of Contents PART 1: INTRODUCING SPAS Our first single page application Reintroducing JavaScript PART 2: SPA CLIENT Develop the Shell Add feature modules Build the Model Finish the Model and Data modules PART 3: THE SPA SERVER The web server The server database Ready our SPA for production

Learn ES6 best practices for code optimization and organization and walk through practical, common examples of how to implement complete components of your applications. While this book covers the basic concepts of modern JavaScript, it primarily

focuses on the new syntax, data-types, functionalities, and everything else that's new in ES6, the latest standard of JavaScript. You'll examine how to use ES6 in functional programming and explore the new more modular and object-oriented approach to JavaScript. This book will help you sharpen and upgrade your JavaScript language skills so you to easily explore modern ES6 based frameworks or libraries such as ReactJS, ReactNative, Angular4 and Vue.js. ES6 for Humans is a complete guide to writing ES6 and will enable you to start taking advantage of this exciting new version of JavaScript. What You'll Learn Use all the new features added to JavaScript Compare ES5 and ES6 in varied situations Refresh your core JavaScript fundamentals Understand the modular and object-oriented approach to JavaScript Who this Book Is For Any Javascript developer who wants to fully understand and dive into the new features of ES6/ES2015. Developers with some background in programming, preferably in JavaScript. A basic understanding of coding concepts and exposure to object-oriented programming is expected.

"Discover how the MEAN development stack--MongoDB, ExpressJS, AngularJS, NodeJS--changes the architecture and semantics of building a web application. In this incisive video course, you'll learn how NodeJS serves as the MEAN stack platform, ExpressJS acts as the web server, AngularJS delivers the user interface, and MongoDB provides persistence."--Resource description page.

Assemble the complete stack required to build a modern web app using MongoDB, Express, React, and Node. This book also covers many other complementary tools: React Router, GraphQL, React-Bootstrap, Babel, and Webpack. This new edition will use the latest version of React (React 16) and the latest React Router (React Router 4), which has a significantly different approach to routing compared to React Router 2 which was used in the first edition of the book. Though the primary focus of Pro MERN Stack is to equip you with all that is required to build a full-fledged web application, a large portion of the book will be devoted to React 16. The popular MEAN (MongoDB, Express, AngularJS, Node) stack introduced Single Page Apps (SPAs) and front-end Model-View-Controller (MVC) as new and efficient paradigms. Facebook's React is a technology that competes indirectly with AngularJS. It is not a full-fledged MVC framework. It is a JavaScript library for building user interfaces (in some sense the View part). Yet, it is possible to build a web app by replacing AngularJS with React – hence the term MERN stack What You Will Learn Discover the features of React 16 to get the maximum out of this library Gain the basics of MongoDB, Express, and Node to build a web app Work with other libraries complementary to React, including React-Bootstrap, React Router, and GraphQL Use tools such as Babel and Webpack required to build JavaScript-based SPAs Tie all the components together to build a complete web app. Who This Book Is For Developers and architects who have prior experience in any web app stack other than the MERN stack will find the book useful to learn about this modern stack. Prior knowledge of JavaScript, HTML, and CSS is required.

This book focuses on the emerging advances in distributed communication systems, big data, intelligent computing and Internet of Things, presenting state-of-the-art research in frameworks, algorithms, methodologies, techniques and applications associated with data engineering and wireless distributed communication technologies. In addition, it discusses potential topics like performance analysis, wireless communication networks, data security and privacy, human computer interaction, 5G Networks, and smart automated systems, which will provide insights for the evolving data communication technologies. In a nutshell, this proceedings book compiles novel and high-quality research that offers innovative solutions for communications in IoT networks. This book constitutes the refereed proceedings of the 11th IFIP WG 5.11 International Symposium on Environmental Software Systems, ISESS 2015, held in Melbourne, Australia, in March 2015. The 62 revised full papers presented were carefully reviewed and selected from 104 submissions. The papers are organized in the following topical sections: information systems, information modeling and semantics; decision support tools and systems; modelling and simulation systems; architectures, infrastructures, platforms and services; requirements, software engineering and software tools; analytics and visualization; and high-performance computing and big data.

Uno los requerimientos más comunes que tiene todo desarrollador es el de conectar una página web con una base de datos que generalmente se ha solucionado con un esquema LAMP o WAMP que reúnen Apache, PHP y MySQL y han sido muy usados en la última década. En este curso aprenderás el uso del nuevo esquema de desarrollo web conocido como MEAN, que es el combo de las herramientas MongoDB, Express, AngularJS y NodeJS. Comenzaremos en la instalación y configuración de estas herramientas hasta la generación de una aplicación web que te servirá de base en tus desarrollos profesionales.

If you are a web application developer interested in using AngularJS for a real-life project, then this book is for you. As a prerequisite, knowledge of JavaScript and HTML is expected, and a working knowledge of AngularJS is preferred.

ANGULARJS & IONIC FRAMEWORK // - Für Entwickler mobiler Apps (nativ/hybrid), Web-Entwickler und -Agenturen, Studenten der Informatik-Studiengänge - Mit vielen Beispielen und Tipps - Entwicklung einer eigenen App - Online: Landingpage zum Buch (Single-Page) und sämtliche Quelltexte aus dem Buch: Listings & komplette Beispiel-App Dieses Buch bietet Ihnen einen umfassenden, professionellen Einstieg in die hybride App-Entwicklung mit AngularJS und Ionic. Mit AngularJS, dem Webframework von Google, programmieren Sie mit einer der neuesten Frontend-Technologien moderne Single-Page-Applications für das Web. Das Ionic Framework, eine Erweiterung von AngularJS, gibt Ihnen das Rüstzeug an die Hand, auch mobile Apps mit Webtechnologien plattformübergreifend zu realisieren. Im Detail lernen Sie zunächst die nötigen Paradigmen sowie das Programmieren mit AngularJS kennen. Darauf aufbauend erhalten Sie eine grundlegende Einführung in das Ionic-Universum und eine mit vielen praktischen Beispielen versehene Erklärung des Frameworks. Dann geht's in die konkrete Umsetzung: Sie entwickeln eine eigene Musikverwaltungs-App, bei der alle wichtigen Komponenten von Ionic zum Einsatz kommen wie z.B. Seitenmenüs, Tab-Navigation, optimierte Formulare und Listen. Ein Extra-Kapitel vermittelt Ihnen spezielleres Wissen zu Themen wie Design-Umsetzung, Testen oder Nutzung von Ionic Backend-Services. AUS DEM INHALT // Cordova/PhoneGap: Installation, Nutzung, CLI AngularJS: Konzepte, Routing // Controller, Service, Direktive // Formulare, Events // Ionic Framework: Installation, CLI, Komponenten, Routing Beispiel-App Musikverwaltung: Konzeption, Umsetzung, ngCordova Fortgeschrittene Themen: Animationen, Filter, Tests // Ionic-Services, SASS statt CSS, App-Icons und Splashscreens

Develop your real-time MEAN application efficiently using a combination of MongoDB, Express, Angular, and Node About This Book Construct a fully-functional MEAN application by using its components along with the best third-party modules Harness the power of the JavaScript ecosystem to effectively run, build, and test your MEAN application Gain a deep, practical understanding of real-time web application development through real-world examples Who This Book Is For If you are a JavaScript developer who is interested in building modern web applications using MongoDB, Express, Angular 2, and Node 5.0, then this book is for you. You only need knowledge of JavaScript development. What You Will Learn Use MongoDB to store and retrieve your application's data Connect your Express application to MongoDB and use the Mongoose module Manage your users'

authentication and offer them diverse login options using Passport Structure and use an Angular 2 application in your MEAN project Use Socket.io to create real-time communication between your client and server Test your application's Express and Angular 2 entities In Detail The MEAN stack is a collection of the most popular modern tools for web development that helps you build fast, robust, and maintainable web applications. Starting with the MEAN core frameworks, this pragmatic guide will explain the key concepts of each framework, how to set them up properly, and how to use popular modules to connect it all together. By following the real-world examples shown in this tutorial, you will scaffold your MEAN application architecture, add an authentication layer, and develop an MVC structure to support your project development. You will learn the best practices of maintaining clear and simple code and will see how to avoid common pitfalls. Finally, you will walk through the different tools and frameworks that will help expedite your daily development cycles. Watch how your application development grows by learning from the only guide that is solely orientated towards building a full, end-to-end, real-time application using the MEAN stack! Style and approach This comprehensive guide covers every part of the MEAN stack, and focuses on the gestalt power of the apps they can create through practical, real-world examples

This book constitutes the refereed proceedings of the Third International Conference on Learning and Collaboration Technologies, LCT 2016, held as part of the 18th International Conference on Human-Computer Interaction, HCII 2016, in Toronto, Canada, in July 2016, in conjunction with 14 thematically similar conferences. The 1287 papers presented at the HCII 2016 conferences were carefully reviewed and selected from 4354 submissions. The papers cover the entire field of human-computer interaction, addressing major advances in knowledge and effective use of computers in a variety of application areas. The papers included in this volume are organized in the following thematic sections: instructional design; interaction techniques and platforms for learning; learning performance; web-based, mobile and ubiquitous learning; intelligent learning environments; learning technologies; collaboration technologies; and cultural and social aspects of learning and collaboration technologies.

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