

is to prepare current and future software engineering teams with the skills and tools to fully utilize AI capabilities in resource-constrained devices. The book introduces essential AI concepts from the perspectives of full-scale software development with emphasis on creating niche Blue Ocean small form factored computational environment products.

Invent To Learn-Sylvia Libow Martinez 2016-09-17 Now in hardcover, this practical guide has become known worldwide as the "bible of the classroom maker movement." It provides K-12 educators with the how, why, and cool stuff that supports every classroom becoming a makerspace where kids and teachers learn together through direct experience with an assortment of high and low-tech materials.

Introducció a la domòtica i estalvi energètic-Maria Lourdes Castella Gener 2015 Treball final de màster per facilitar la introducció de la domòtica a l'educació secundària obligatòria a través de la resolució de reptes per l'alumnat. Els reptes es plantegen per solucionar una problemàtica de l'entorn de l'habitatge. Per arribar a la solució els alumnes han de plantejar la solució, elaborar el disseny i han de realitzar la solució final. Durant tot el procés es van introduint conceptes de domòtica a través de la utilització de la placa Arduino UNO. Es comença a segon d'ESO amb la introducció del sensor de temperatura per la monitorització d'aquesta amb el programari S4A (Scratch for Arduino). En el segon cicle, tercer i quart d'ESO, l'alumne aprèn a programar amb l'aplicació Processing a través de la utilització de la llibreria d'Arduino per facilitar la comunicació entre el PC i la placa. S'utilitzen les sentències de programació bàsiques per realitzar accions i controlar el sistema domòtic. Les pràctiques que es realitzen són transversals, es a dir, es poden aprofitar d'un curs a un altres. Així els alumnes de 4rt curs poden aprofitar el disseny que s'ha elaborat a 3er d'ESO. El resultat és un conjunt de practiques preparades per ser aplicades a la secundària. Amb les solucions i el desenvolupament del codi necessari per la programació.

The Official ScratchJr Book-Marina Umaschi Bers 2015-10-01 ScratchJr is a free, introductory computer programming language that runs on iPads and Android tablets. Inspired by Scratch, the wildly popular programming language used by millions of children worldwide, ScratchJr helps even younger kids create their own playful animations, interactive stories, and dynamic games. The Official ScratchJr Book is the perfect companion to this free app and makes coding easy and fun for all. Kids learn to program by connecting blocks of code to make characters move, jump, dance, and sing. Each chapter includes several activities that build on one another, culminating in a fun final project. These hands-on activities help kids develop computational-thinking, problem-solving, and design skills. In each activity, you'll find: *Step-by-step, easy-to-follow directions *Ways to connect the activity with literacy and math concepts *Tips for grown-ups and teachers *Creative challenges to take the learning further By the end of the book, kids will be ready for all sorts of new programming adventures!

Getting Started with Raspberry Pi-Matt Richardson 2012-12-10 What can you do with the Raspberry Pi, a \$35 computer the size of a credit card? All sorts of things! If you're learning how to program, or looking to build new electronic projects, this hands-on guide will show you just how valuable this flexible little platform can be. This book takes you step-by-step through many fun and educational possibilities. Take advantage of several preloaded programming languages. Use the Raspberry Pi with Arduino. Create Internet-connected projects. Play with multimedia. With Raspberry Pi, you can do all of this and more. Get acquainted with hardware features on the Pi's board Learn enough Linux to move around the operating system Pick up the basics of Python and Scratch—and start programming Draw graphics, play sounds, and handle mouse events with the Pygame framework Use the Pi's input and output pins to do some hardware hacking Discover how Arduino and the Raspberry Pi complement each other Integrate USB webcams and other peripherals into your projects Create your own Pi-based web server with Python

Learn to Program with Scratch-Majed Marji 2014-02-14 Scratch is a fun, free, beginner-friendly programming environment where you connect blocks of code to build programs. While most famously used to introduce kids to programming, Scratch can make computer science approachable for people of any age. Rather than type countless lines of code in a cryptic programming language, why not use colorful command blocks and cartoon

sprites to create powerful scripts? In Learn to Program with Scratch, author Majed Marji uses Scratch to explain the concepts essential to solving real-world programming problems. The labeled, color-coded blocks plainly show each logical step in a given script, and with a single click, you can even test any part of your script to check your logic. You'll learn how to: -Harness the power of repeat loops and recursion -Use if/else statements and logical operators to make decisions -Store data in variables and lists to use later in your program -Read, store, and manipulate user input -Implement key computer science algorithms like a linear search and bubble sort Hands-on projects will challenge you to create an Ohm's law simulator, draw intricate patterns, program sprites to mimic line-following robots, create arcade-style games, and more! Each chapter is packed with detailed explanations, annotated illustrations, guided examples, lots of color, and plenty of exercises to help the lessons stick. Learn to Program with Scratch is the perfect place to start your computer science journey, painlessly. Uses Scratch 2

Robotics in Education-Wilfried Lepuschitz 2018-09-01 This proceedings volume comprises the latest achievements in research and development in educational robotics presented at the 9th International Conference on Robotics in Education (RiE) held in Qawra, St. Paul's Bay, Malta, during April 18-20, 2018. Researchers and educators will find valuable methodologies and tools for robotics in education that encourage learning in the fields of science, technology, engineering, arts and mathematics (STEAM) through the design, creation and programming of tangible artifacts for creating personally meaningful objects and addressing real-world societal needs. This also involves the introduction of technologies ranging from robotics platforms to programming environments and languages. Extensive evaluation results are presented that highlight the impact of robotics on the students' interests and competence development. The presented approaches cover the whole educative range from elementary school to the university level in both formal as well as informal settings.

Basic VLSI Design-Douglas A. Pucknell 1985

Scratch 2.0 Game Development HOTSHOT-Sergio van Pul 2014-02-21 An easy-to-use book, containing 10 engaging projects that will help you learn how to build video games with the easy to use Scratch 2.0 environment. If you are a new, or current Scratch user and would like to improve your understanding of the new Scratch 2.0 interface, and learn how to make video games, this book is ideal for you. Each project is explained in-depth from start to finish, so everyone can follow along, even if you don't have much previous experience with the software. If you want to become a video game designer, this book is an easy-to-use and friendly guide about the world of interactive media. It will teach, challenge, and inspire you to create great interactive projects.

Practical Arduino-Jonathan Oxer 2011-01-26 Create your own Arduino-based designs, gain in-depth knowledge of the architecture of Arduino, and learn the user-friendly Arduino language all in the context of practical projects that you can build yourself at home. Get hands-on experience using a variety of projects and recipes for everything from home automation to test equipment. Arduino has taken off as an incredibly popular building block among ubicomp (ubiquitous computing) enthusiasts, robotics hobbyists, and DIY home automation developers. Authors Jonathan Oxer and Hugh Blemings provide detailed instructions for building a wide range of both practical and fun Arduino-related projects, covering areas such as hobbies, automotive, communications, home automation, and instrumentation. Take Arduino beyond "blink" to a wide variety of projects from simple to challenging Hands-on recipes for everything from home automation to interfacing with your car engine management system Explanations of techniques and references to handy resources for ubiquitous computing projects Supplementary material includes a circuit schematic reference, introductions to a range of electronic engineering principles and general hints & tips. These combine with the projects themselves to make Practical Arduino: Cool Projects for Open Source Hardware an invaluable reference for Arduino users of all levels. You'll learn a wide variety of techniques that can be applied to your own projects.

Super Scratch Programming Adventure!-The LEAD Project 2013-09-30 Provides step-by-step instructions and code to create computer games inspired by classic arcade games using Scratch.

Lifelong Kindergarten-Mitchel Resnick 2018-08-10 In Kindergarten, children spend more time with math worksheets than building blocks and finger paint. Kindergarten is becoming more like school. School (even the rest of life) should be more like kindergarten. To thrive in today's fast-changing world, people of all ages must learn to think and act creatively. The author discusses new technologies and strategies for engaging young people in creative learning experiences. He tells stories of how children are programming their own games, stories, and inventions, and collaborating through remixing, crowdsourcing, and large-scale group projects.

Serious Games and Edutainment Applications-Minhua Ma 2017-03-03 With the continued application of gaming for training and education, which has seen exponential growth over the past two decades, this book offers an insightful introduction to the current developments and applications of game technologies within educational settings, with cutting-edge academic research and industry insights, providing a greater understanding into current and future developments and advances within this field. Following on from the success of the first volume in 2011, researchers from around the world presents up-to-date research on a broad range of new and emerging topics such as serious games and emotion, games for music education and games for medical training, to gamification, bespoke serious games, and adaptation of commercial off-the shelf games for education and narrative design, giving readers a thorough understanding of the advances and current issues facing developers and designers regarding games for training and education. This second volume of Serious Games and Edutainment Applications offers further insights for researchers, designers and educators who are interested in using serious games for training and educational purposes, and gives game developers with detailed information on current topics and developments within this growing area.

Beginning Arduino Programming-Brian Evans 2011-12-17 Beginning Arduino Programming allows you to quickly and intuitively develop your programming skills through sketching in code. This clear introduction provides you with an understanding of the basic framework for developing Arduino code, including the structure, syntax, functions, and libraries needed to create future projects. You will also learn how to program your Arduino interface board to sense the physical world, to control light, movement, and sound, and to create objects with interesting behavior. With Beginning Arduino Programming, you'll get the knowledge you need to master the fundamental aspects of writing code on the Arduino platform, even if you have never before written code. It will have you ready to take the next step: to explore new project ideas, new kinds of hardware, contribute back to the open source community, and even take on more programming languages.

Scratch 3 Programming Playground-Al Sweigart 2021-01-19 A project-filled introduction to coding that shows kids how to build programs by making cool games. Scratch, the colorful drag-and-drop programming language, is used by millions of first-time learners worldwide. Scratch 3 features an updated interface, new programming blocks, and the ability to run on tablets and smartphones, so you can learn how to code on the go. In Scratch 3 Programming Playground, you'll learn to code by making cool games. Get ready to destroy asteroids, shoot hoops, and slice and dice fruit! Each game includes easy-to-follow instructions with full-color images, review questions, and creative coding challenges to make the game your own. Want to add more levels or a cheat code? No problem, just write some code. You'll learn to make games like: • Maze Runner: escape the maze! • Snaaaaaake: gobble apples and avoid your own tail • Asteroid Breaker: smash space rocks • Fruit Slicer: a Fruit Ninja clone • Brick Breaker: a remake of Breakout, the brick-breaking classic • Platformer: a game inspired by Super Mario Bros Learning how to program shouldn't be dry and dreary. With Scratch 3 Programming Playground, you'll make a game of it! Covers: Scratch 3

Arduino Project Handbook-Mark Geddes 2016-06-01 Arduino Project Handbook is a beginner-friendly collection of electronics projects using the low-cost Arduino board. With just a handful of components, an Arduino, and a computer, you'll learn to build and program everything from light shows to arcade games to an ultrasonic security system. First you'll get set up with an introduction to the Arduino and valuable advice on tools and components. Then you can work through the book in order or just jump to projects that catch your eye. Each project includes simple instructions, colorful photos and circuit diagrams, and all necessary code. Arduino Project Handbook is a fast and fun way to get started with microcontrollers that's perfect for beginners, hobbyists, parents, and educators. Uses the Arduino Uno board.

Making Things See-Greg Borenstein 2012-01-27 A guide to creating computer applications using Microsoft Kinect features instructions on using the device with different operating systems, using 3D scanning technology, and building robot arms, all using open source programming language.

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Current Directions in Turkish Sign Language Research-Engin Arik 2014-07-18 This book aims to contribute to our knowledge of Turkish Sign Language (TİD), and sign language linguistics in general. TİD is a relatively old signed language, and is, at present, believed to be historically unrelated to other signed languages. Linguistic studies on this language started in the early 2000s. There has been growing academic interest and an increasing body of work on TİD within the past decade, enhancing the need for this this book, which brings together chapters covering a variety of topics, such as the history of deaf education and TİD, issues regarding language documentation, a phonological study of fingerspelling, reciprocals, interrogatives, reported utterances, expressions of spatial relations including their acquisitions, and expressions of multiple entities. This book was supported in part by the TÜBİTAK Research Fund, Project No. 111K314. This edited volume serves as a useful resource for newcomers to the field, gives new momentum to future research on TİD, and offers unique perspectives in investigating sign languages in general. Finally, the intention is that the conversations within this volume will open up new discussions not only within sign linguistics, but also in other related fields such as cognitive science.

Robotics in Education-Munir Merdan 2016-10-04 This proceedings volume showcases the latest achievements in research and development in Educational Robotics presented at the 7th International Conference on Robotics in Education (RiE) held in Vienna, Austria, during April 14-15, 2016. The book offers a range of methodologies for teaching robotics and presents various educational robotics curricula. It includes dedicated chapters for the design and analysis of learning environments as well as evaluation means for measuring the impact of robotics on the students' learning success. Moreover, the book presents interesting programming approaches as well as new applications, the latest tools, systems and components for using robotics. The presented applications cover the whole educative range, from elementary school to high school, college, university and beyond, for continuing education and possibly outreach and workforce development. The book provides a framework involving two complementary kinds of contributions: on the one hand on technical aspects and on the other hand on matters of didactic.

Robotics in Education-Munir Merdan 2019-08-06 This proceedings book gathers the latest achievements and trends in research and development in educational robotics from the 10th International Conference on Robotics in Education (RiE), held in Vienna, Austria, on April 10-12, 2019. It offers valuable methodologies and tools for robotics in education that encourage learning in the fields of science, technology, engineering, arts and mathematics (STEAM) through the design, creation and programming of tangible artifacts for creating personally meaningful objects and addressing real-world societal needs. It also discusses the introduction of technologies ranging from robotics platforms to programming environments and languages and presents extensive evaluations that highlight the impact of robotics on students' interests and competence development. The approaches included cover the entire educative range, from the elementary school to the university level in both formal and informal settings.

Super Scratch Programming Adventure!-LEAD Project 2012 Scratch is an educational programming language that allows children to imagine, create, and share their own games, interactive stories, and music videos. Kids will master programming fundamentals by making games inspired by arcade classics like Breakout and Pitfall.

Arduino Home Automation Projects-Marco Schwartz 2014-07-23 This book is divided into projects that are

explained in a step-by-step format, with practical instructions that are easy to follow. If you want to build your own home automation systems wirelessly using the Arduino platform, this is the book for you. You will need to have some basic experience in Arduino and general programming languages, such as C and C++ to understand the projects in this book.

Turtles, Termites, and Traffic Jams-Mitchel Resnick 1997 "A Bradford book." Includes bibliographical references (p. [157]-163).

Teaching Computational Thinking in Primary Education-Ozcinar, Huseyin 2017-10-31 Computational technologies have been impacting human life for years. Teaching methods must adapt accordingly to provide the next generation with the necessary knowledge to further advance these human-assistive technologies. Teaching Computational Thinking in Primary Education is a crucial resource that examines the impact that instructing with a computational focus can have on future learners. Highlighting relevant topics that include multifaceted skillsets, coding, programming methods, and digital games, this scholarly publication is ideal for educators, academicians, students, and researchers who are interested in discovering how the future of education is being shaped.

Non-Formal and Informal Science Learning in the ICT Era-Michail Giannakos 2020-10-16 This book introduces the reader to evidence-based non-formal and informal science learning considerations (including technological and pedagogical innovations) that have emerged in and empowered the information and communications technology (ICT) era. The contributions come from diverse countries and contexts (such as hackerspaces, museums, makerspaces, after-school activities) to support a wide range of educators, practitioners, and researchers (such as K-12 teachers, learning scientists, museum curators, librarians, parents, hobbyists). The documented considerations, lessons learned, and concepts have been extracted using diverse methods, ranging from experience reports and conceptual methods to quantitative studies and field observation using qualitative methods. This volume attempts to support the preparation, set-up, implementation, but also evaluation of informal learning activities to enhance science education.

mBot for Makers-Andrew Carle 2017-11-27 The mBot robotics platform is a hugely popular kit because of the quality of components and price. With hundreds of thousands of these kits out there in homes, schools and makerspaces, there is much untapped potential. Getting Started with mBots is for non-technical parents, kids and teachers who want to start with a robust robotics platform and then take it to the next level. The heart of the mBot, the mCore is a powerful Arduino based microcontroller that can do many things without soldering or breadboarding.

Microcontroller Education-Dimosthenis E. Bolanakis 2017-11-02 Microcontroller education has experienced tremendous change in recent years. This book attempts to keep pace with the most recent technology while holding an opposing attitude to the No Need to Reinvent the Wheel philosophy. The choice strategies are in agreement with the employment of today's flexible and low-cost Do-It-Yourself (DIY) microcontroller hardware, along with an embedded C programming approach able to be adapted by different hardware and software development platforms. Modern embedded C compilers employ built-in features for keeping programs short and manageable and, hence, speeding up the development process. However, those features eliminate the reusability of the source code among diverse systems. The recommended programming approach relies on the motto Code More to Learn Even More, and directs the reader toward a low-level accessibility of the microcontroller device. The examples addressed herein are designed to meet the demands of Electrical & Electronic Engineering discipline, where the microcontroller learning processes definitely bear the major responsibility. The programming strategies are in line with the two virtues of C programming language, that is, the adaptability of the source code and the low-level accessibility of the hardware system.

Getting Started with Arduino-Massimo Banzi 2011-09-13 Presents an introduction to the open-source

electronics prototyping platform.

Constructionism in Practice-Yasmin B. Kafai 2012-11-12 The digital revolution necessitates, but also makes possible, radical changes in how and what we learn. This book describes a set of innovative educational research projects at the MIT Media Laboratory, illustrating how new computational technologies can transform our conceptions of learning, education, and knowledge. The book draws on real-world education experiments conducted in formal and informal contexts: from inner-city schools and university labs to neighborhoods and after-school clubhouses. The papers in this book are divided in four interrelated sections as follows: * Perspectives in Constructionism further develops the intellectual underpinnings of constructionist theory. This section looks closely at the role of perspective-taking in learning and discusses how both cognitive and affective processes play a central role in building connections between old and new knowledge. * Learning through Design analyzes the relationship between designing and learning, and discusses ways that design activities can provide personally meaningful contexts for learning. This section investigates how and why children can learn through the processes of constructing artifacts such as games, textile patterns, robots and interactive devices. * Learning in Communities focuses on the social aspects of constructionist learning, recognizing that how people learn is deeply influenced by the communities and cultures with which they interact. It examines the nature of learning in classroom, inner-city, and virtual communities. * Learning about Systems examines how students make sense of biological, technological, and mathematical systems. This section explores the conceptual and epistemological barriers to learning about feedback, self-organization, and probability, and it discusses new technological tools and activities that can help people develop new ways of thinking about these phenomena.

Computer Programming for Kids with Scratch-Craig Whitmore 2011

Hacking Electronics: An Illustrated DIY Guide for Makers and Hobbyists-Simon Monk 2013-03-22 Bring your electronic inventions to life! "This full-color book is impressive...there are some really fun projects!" - GeekDad, Wired.com Who needs an electrical engineering degree? This intuitive guide shows how to wire, disassemble, tweak, and re-purpose everyday devices quickly and easily. Packed with full-color illustrations, photos, and diagrams, Hacking Electronics teaches by doing--each topic features fun, easy-to-follow projects. Discover how to hack sensors, accelerometers, remote controllers, ultrasonic rangefinders, motors, stereo equipment, microphones, and FM transmitters. The final chapter contains useful information on getting the most out of cheap or free bench and software tools. Safely solder, join wires, and connect switches Identify components and read schematic diagrams Understand the how and why of electronics theory Work with transistors, LEDs, and laser diode modules Power your devices with a/c supplies, batteries, or solar panels Get up and running on Arduino boards and pre-made modules Use sensors to detect everything from noxious gas to acceleration Build and modify audio amps, microphones, and transmitters Fix gadgets and scavenge useful parts from dead equipment

Programming the BBC micro:bit: Getting Started with MicroPython-Simon Monk 2017-11-17 Quickly write innovative programs for your micro:bit—no experience necessary! This easy-to-follow guide shows, step-by-step, how to quickly get started with programming and creating fun applications on your micro:bit.. Written in the straightforward style that Dr. Simon Monk is famous for, Programming the BBC micro:bit: Getting Started with MicroPython begins with basic concepts and gradually progresses to more advanced techniques. You will discover how to use the micro:bit's built-in hardware, use the LED display, accept input from sensors, attach external electronics, and handle wireless communication. •Connect your micro:bit to a computer and start programming!•Learn how to use the two most popular MicroPython editors •Work with built-in functions and methods—and see how to write your own•Display text, images, and animations on the micro:bit's LED matrix•Process data from the accelerometer, compass, and touch sensor•Control external hardware by attaching it to the edge connector•Send and receive messages via the built-in radio module•Graphically build programs with the JavaScript Blocks Editor