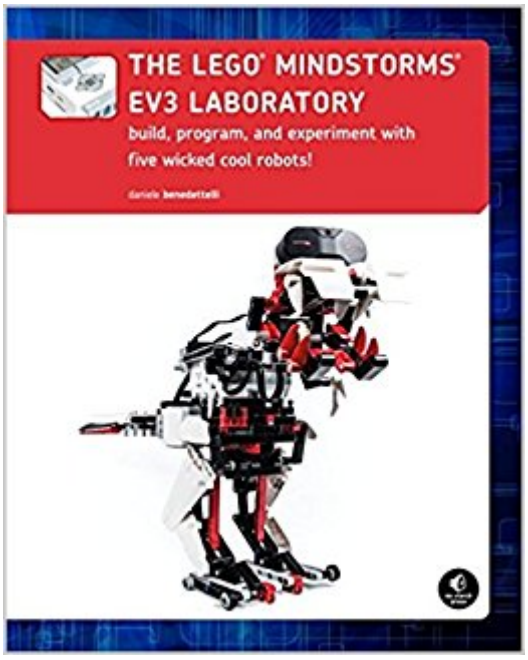
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The LEGO MINDSTORMS EV3 Laboratory: Build, Program, And Experiment With Five Wicked Cool Robots



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Synopsis

The LEGOÃ Â® MINDSTORMSÃ Â® EV3 set offers so many new and exciting features that it can be hard to know where to begin. Without the help of an expert, it could take months of experimentation to learn how to use the advanced mechanisms and numerous programming features.In The LEGO MINDSTORMS EV3 Laboratory, author Daniele Benedettelli, robotics expert and member of the elite LEGO MINDSTORMS Expert Panel, shows you how to use gears, beams, motors, sensors, and programming blocks to create sophisticated robots that can avoid obstacles, walk on two legs, and even demonstrate autonomous behavior. YouÃ¢â ¬â„¢ll also dig into related math, engineering, and robotics concepts that will help you create your own amazing robots. Programming experiments throughout will challenge you, while a series of comics and countless illustrations inform the discussion and keep things fun.As you make your way through the book, youÃ¢â ¬â„¢ll build and program five wicked cool robots:Ã¢â ¬â œROV3R, a vehicle you can modify to do things like follow a line, avoid obstacles, and even clean a roomÃ¢â ¬â œWATCHGOOZ3, a bipedal robot that can be programmed to patrol a room using only the Brick Program App (no computer required!)Ã¢â ¬â œSUP3R CAR, a rear-wheel-drive armored car with an ergonomic two-lever remote controlÃ¢â ¬â œSENTIN3L, a walking tripod that can record and execute color-coded sequences of commandsÃ¢â ¬â œT-R3X, a fearsome bipedal robot that will find and chase down preyWith The LEGO MINDSTORMS EV3 Laboratory as your guide, youÃ¢â ¬â„¢ll become an EV3 master in no time.Requirements: One LEGO MINDSTORMS EV3 set (LEGO SET #31313)

Book Information

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Hobbies > Toys & Models > Models

Age Range: 12 and up

Grade Level: 7 and up

Customer Reviews

Gr 6 UpÃ¢â ¬â •This informative guide to the LEGO EV3 Mindstorms kit provides clear directions for building and programming five advanced robots. In order to find this book useful, readers must already own the LEGO EV3 Mindstorms kit; author Benedettelli provides a chart of pieces in the appendix that readers should acquire if they own different versions of Mindstorms kits. Tech-savvy students will find the projects engrossing, but be forewarned that this text is not for novice Mindstorms users or those new to robotics. Black-and-white drawings may prove challenging for some to compare with real life colored LEGOs. Readers are treated to a comic narrative throughout the book that mimics the book's progress, which can help break up the tedious nature of instructional text and drawings, though they are more entertaining than informative. Benedettelli painstakingly describes how to manipulate the kits and their myriad parts and does not assume that the reader will have access to a computer, helpfully describing how to program without one. A good addition for schools serving students on robotics or LEGO teams, but this guide may not find wide readership in most public libraries.Ã¢â ¬â •Amy M. Laughlin, Darien Library, CT

Daniele Benedettelli is known worldwide for his original LEGO robots, including his RubikÃ¢â ¬â„¢s Cube solvers and his humanoid robots. As a LEGO MINDSTORMS Community Partner (MCP), he helps to test and develop new MINDSTORMS products. He earned a masterÃ¢â ¬â„¢s degree in Robotics and Automation from the University of Siena in Italy. He holds educational presentations and workshops on Information and Communications Technology around the world and teaches robotics at the high school level.

First of all a caveat: I do not work for , LEGO or No Starch Press, and I'm not related to the author. I'm a 63 year old kid who was weaned on Tinker Toys and Erector sets. I enjoy building things, can follow instructions and use a computer, and am innately curious about how the things I build actually work. I bought this book to better understand how the EV3 robots actually work, both mechanically and programatically, and have found it to be extremely useful.Thus far I've built and programmed the first four robots (Chapters 1-14). I had no problem following the monochromatic instructions, although an ebook in full color is now available via No Starch Press.The most interesting part for me

is the clear explanation of how the programming blocks work, both singly and in combination. I didn’t find the information on programming via the EV3 Brick App to be particularly useful--I suspect that most users will program on their PCs--however, you don’t have to know any programming language to replicate and modify the programs which are richly illustrated. And those not interested in programming at all can simply download the programs from the author’s website. The entire book is organized with just enough information for everyone--from those interested in making the robots "come alive" to those desiring a deeper understanding so they can create and activate whatever their imaginations can conceive.A bonus: If you get stuck along the way you can email the author for guidance. He’s already helped me on two occasions which has both improved my understanding and fueled my enthusiasm. And there’s no charge!I recommend this book to everyone, young and old. Almost makes me wish I was back in high school taking a robotics class. Well, almost.....

I use dozens of mindstorm projects in our High School Robotics tutorials, and this is by far the most advanced, complete and innovative, and by FAR the most clearly illustrated. I tried out the projects at an advanced teach the teachers conference (also using Blankenships fine book:Ã Â Robot’s in the Classroom), which we buy in quantity, and even MS beginners "got" the pictures immediately.The projects worked great with few glitches, and typical of No Starch, the code and diagrams were well edited and functional right out of the book. The author has a "save you money" attitude, and tries to show processor block techniques that don’t require a laptop to execute, but also includes PC interfaces (see page references below) in advanced projects. As you probably know, you DO need the $350 Lego Mindstorms kit to conduct these experiments and build these projects! (For reference it is a great deal on , it is here:Ã Â LEGO Mindstorms EV3 31313). This is a PROFESSIONAL level robotics kit, but one that even HS kids can enjoy.Most books like this concentrate either on code or mechanics, and few do both well, let alone theory. I mean, even at over 400 pages and with 5 real projects, there is a LOT to cover, especially since this author really likes autonomous designs and working on deep (and custom!) details, like math and software that turn gear activators into transmissions via math (functions/code). Of the other top 3 MS project books, this is the ONLY one that not only covers scripting in detail, as well as gears/servos etc. AND also goes very deeply into logic, math, technical aspects of robotics, etc.Remember, this young author is the one who created an award winning Rubik’s cube solver! Some of the predator-prey code is done so elegantly that the military drone types will probably be looking at it-- in advanced work these sims require graduate school level differential equations, yet this inventor does it with

minimilist code that High Schoolers and self taught hobbyists get right away! As long as your "prey" has a signature (eg IR), you’re good to chase and eat with your voracious T Rex.Part of the value you don’t get in any other book is that the writer is a true inventor both mechanically and codewise, and you can see his practical experience on every page of shortcuts, wisdoms and rules of thumb you can use even in the most advanced robotics. A "solver" mind can write 5 lines of Haskell that will solve any Sudoku puzzle, while other more imperative coders take over 40 lines of Java. In robotics, with memory always at a premium even in those that run Linux, authors like this with real world accomplishments don’t teach you a bunch of techniques you have to unlearn later, and get you and your students/ kids/ grandkids on the right track from day one, even with the physics, mechanical engineering and math. The "comic book" adds really give you a break from the plentiful "parts" mechanical illustrations and programming action throughout.Takes a high school level mind to get most of it, and undergrad for some of the advanced concepts, but any intelligent layperson can get these done with K-12 "helpers." I don’t know about Italy, but shop classes in the US are virtually gone (like sports programs are going!), so Lego Mindstorms is one of the few "STEM" courses that can hide out as math, science and engineering yet still teach numerous practical mechanical techniques, gears, angles, etc. while having real FUN.Highly recommended, at the top of my top 5 list in this subject area, whether you’re a hobbyist, teacher, student, or professional robotocist. GREAT adjunct gift with an MS purchase too-- I wouldn’t invest in an MS kit without this book! AND if you don’t have the $350 to shell out on an MS right now (who does today?), the "wisdom" of the code and projects (although not the specific mechanics, as the numerous illustrations are obviously MS) also work for parallax, robobasic and many other projects that require less investment. Some more advanced libraries are offering MS as a checkout item also, although the last one I got for one of my kids was an earlier version than this text covers, yet still 90% applicable.A few page number references for the above topics (NOTE: this book is literally FILLED with illustrations, so don’t worry if the text topics seem complex, the author takes painstaking time to illustrate everything from component builds to screen shots to a complete in-book comic! There also are little "Digging Deeper" boxes that explain advanced concepts.There are FAR more illustrations than there is text, even though the breadth of topics is amazing). PAGES-- Brick connect to PC where needed: 75; Remote control programming: 240; Hunting prey with your T-rex (an infrared target): 376 (includes seek and chase blocks and teaches basic state priorities and transitions); power vs. speed: 297; Pythagorean theorem vs. lego angles: 261; actuator/motor speed regulation: 188; Patrolling a room on two legs with block alone (no pc needed): 131; Using math blocks directly: 95; Keeping distances in any room (wall following w/ IR): 64; Logic operators and De Morgan’s laws

(of logic): 373. Many more features, and nearly an entire second book is online on half a dozen of the author's and publisher pages, generally in the benedetelli dot com series, enjoy!

As an FLL coach, I am disappointed in this book. The entire book is void of color - unlike all the other EV3 books I have. Part lists and directions are ALL in grayscale. This makes pulling the correct parts much more difficult for the kids. There is a legend for part color, but really?All the programming examples are in grayscale too. The Mindstorms software is full of color! Programming blocks are grouped by color. But in this book, it is all grayscale.This might appeal to high school students already familiar with Mindstorms and EV3 builiding. My team, ages 9-14, will not pick up this book. The illustrations are just too time intensive to understand without color. Not one student will try to build from this book.Instead, I highly recommend The Lego Mindstorms EV3 Discovery Book by Laurens Valk, The Art of Lego Mindstorms EV3 Programming by Terry Griffin, and The Lego Mindstorms EV3 Idea Book by Yoshihito Isogawa. All are full color, easy to follow, and have great instructions.

REALLY ???? NO COLOR !!! Nightmare for Kids and "Old" kids like me.I received many other LEGO books, all in full color. Why this one, the one with the best content has to be monochromatic????Very disappointed and completely unmotivated to read it all.. The Author give to me great support and explanations on the e-Book, it is free after you order this one and it comes full colored.

This is a really good complement to the EV3 Mindstorms set. It covers basics of building with the Technics system, a lot of useful math, geometry and mechanisms, and programming. This lets you get a lot more out of Mindstorms than you could with just the included manuals.A couple of small quibbles: As more than one reviewer has pointed out, the black & white build instructions are not ideal. You do have to pay close attention to the part lists, since there is usually a single-letter code indicating the color. Another (minor) problem is that once the robots are built, it is very difficult to access the batteries to change them. I suspect the author uses the rechargeable battery from the education set, which can be charged in place.

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Contraptions The Art of LEGO MINDSTORMS EV3 Programming (Full Color) Totally Cool Creations: Three Books in One; Cool Cars and Trucks, Cool Robots, Cool City Robots and Robotics High Risk Robots Macmillan Library (Robots and Robotics - Macmillan Library) Little Box of Cool Lego Projects: Lego Tips for Kids: Space Paper Robots: 25 Fantastic Robots You Can Build Yourself! Make: Lego and Arduino Projects: Projects for extending MINDSTORMS NXT with open-source electronics Understanding Coding with Lego Mindstorms (Kids Can Code) The LEGO Neighborhood Book: Build Your Own LEGO Town! Cable-Driven Parallel Robots: Proceedings of the Third International Conference on Cable-Driven Parallel Robots (Mechanisms and Machine Science) Robots, Robots Everywhere! (Little Golden Book) House of Robots: Robots Go Wild! House of Robots (House of Robots Series Book 1) ROBOTS, ROBOTS EVERY The LEGO Adventure Book, Vol. 3: Robots, Planes, Cities & More! Incredible LEGO Technic: Cars, Trucks, Robots & More! Collection of eight 4- and 8-Wheel Reefers and Box Cars: Lego MOC building instructions (Lego Train MOC Plans) Volcanoes and other Forces of Nature (LEGO Nonfiction): A LEGO Adventure in the Real World

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