PRESS RELEASE

Latest "Roberta" Textbook Introduces Programming with Java

Even students and teachers already familiar with the graphics of the LEGO® MINDSTORMS® programming interface will often shy away from textual programming. The new "EV3 Programming with Java" textbook hopes to change that by introducing Roberta teachers to Java programming techniques. The book has been published as part of Fraunhofer's "Roberta – Learning with robots" initiative and is a joint development project run by the Fraunhofer Institute for Intelligent Analysis and Information Systems IAIS and Oracle Academy. In addition to simple programming tasks, readers can also expect to learn about a large-scale Roberta experiment, which highlights the advantages of textual and object orientated programming demonstrated with practical examples.

"The transition from graphic to text-based programming is really not as daunting as many users might fear", says Beate Jost, the Roberta Initiative's technical project manager at Fraunhofer IAIS. "The Java programming language, in particular, allows us to program close to real life which means it is easy to learn and lends itself beautifully to working with the LEGO MINDSTORMS system." By linking what is undoubtedly the best known object orientated programming language with the robots used by Roberta it becomes fairly simple to turn far more complex programs into reality. "Our new Roberta textbook uses practical examples to explain the Java programming world to experienced Roberta teachers and offers practical help and advice for the Roberta classes they teach", explains Jost.

The book, which is the result of a collaboration between Fraunhofer IAIS and Oracle Academy, provides an introduction to programming languages using small, easily comprehensible steps. The first few chapters offer a basic understanding of the theory and practice of textual programming through simple easy-to-understand examples. Real life objects such as robots, engines or sensors, which are used in the programming examples clearly illustrate the object orientation principle – the most important concept in Java programming. The following chapters cover a variety of topics before finally showing how a Roberta experiment combining Java and the EV3 system can be successfully employed in a Roberta teaching course.

"By collaborating with the Roberta initiative and supporting the latest Roberta volume, Programming with Java (Programmieren mit Java), we continue our commitment to supporting computer science education," says Alison Derbenwick Miller, vice president, Oracle Academy. "We hope that through the creation of educational materials and programs that make a challenging discipline like computer science engaging for every-

FRAUNHOFER INSTITUTE FOR INTELLIGENT ANALYSIS AND INFORMATION SYSTEMS IAIS

one, we will increase participation, especially by girls and other underrepresented populations in the field, creating a richer and better future for everyone, everywhere."

Java is one of the world's most commonly used programming languages and one of the aims of this collaboration is to introduce school children to it in a fun way and to use the Roberta teacher training courses to train teachers to show how this can be done. The latest Roberta textbook "EV3 programming with Java" successfully builds on this idea by explaining not only the simple transition to text-based programming, but also introduces teachers and their pupils to a programming language which they would otherwise use only as part of commercially available professional applications and games.

For over ten years now the "Roberta – Learning with robots" initiative has been introducing children and young people to the joys of science and using LEGO MINDSTORMS robots to teach them in gender and age appropriate courses how much fun technology and the natural sciences can be. The new "EV3 programming with Java" Roberta textbook is available in German from the Fraunhofer-Verlag for € 34,90 (ISBN: 978-3-8396-0840-1). An eBook will soon be available.

Java Programming with Roberta: The Robot solves the cube

What is possible using Java programming together with LEGO Mindstorms EV3 robots shows the exciting experiment "Cube Solver": solving a Rubik's Cube by hand is a complex riddle – Roberta succeeds within minutes. Built from a single LEGO Education EV3 basic set and programmed with leJOS, the robot scans the Rubik's Cube via a sensor, calculates the correct solution and automatically brings the colors into the right positions. The instructions for this experiment can be found in the new Roberta textbook EV3 Programming with Java.

Video of the experiment: https://www.youtube.com/watch?v=4jZSBK6oB1Q

More Information

www.roberta-home.de

academy.oracle.com

https://www.verlag.fraunhofer.de/bookshop/buch/Roberta-EV3-Programmieren-mit-Java/242679

About the "Roberta – Learning with Robots" initiative by Fraunhofer IAIS

The Roberta initiative, developed and managed by the Fraunhofer Institute for Intelligent Analysis and Information Systems IAIS, aims to engage and motivate girls and boys to take a sustained long-term interest in computer science, technology and the natural sciences. With more than 30,000 children and young people in over 600 documented Roberta courses – Roberta is a permanent fixture in the German education landscape. It works through boosting and promoting an understanding of technology at school, apprenticeship and university levels in a gender-appropriate manner and immersing girls and boys from as young as ten years old in the fascinating world of mobile robots using real robot kits.

Contact

Thorsten Leimbach
Roberta Project Manager
Phone +49 2241 14-2404
thorsten.leimbach@iais.fraunhofer.de

About Oracle Academy

Oracle Academy provides a complete portfolio of software, curriculum, hosted technology, faculty training, support, and certification resources to education institutions for teaching use. Faculty can insert these resources into computer science and business programs, helping students gain industry-relevant skills and become college and career ready. Oracle Academy supports more than 2.2 million students in 98 countries. To learn more, visit http://oracle.com/academy.

Contact

Britta Wolf
Senior Program Manager – Oracle Academy Germany, Austria, Switzerland
Phone +49 89 1430-1596
britta.wolf@oracle.com