

The Future of Academic Books

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By: **John Cody**



For those wondering what the future of academic publishing might look like, the [Springer Handbook of Robotics](#) might point the way. The team behind it took a different approach from standard handbooks. The innovation, collaboration, and marketing that went into it has undoubtedly contributed to its success. The strength of the publication is reflected in the diversity of its audience that ranges from roboticists to ethicists exploring the future of robotics' impact on humanity, to members of the European Commission looking to understand developments in the robotics community.

Bruno Siciliano and Oussama Khatib, co-editors, and Torsten Kroeger, multimedia lead and contributing author to the handbook, sat down to discuss how they brought it together. It is their hope that their experience can help more authors make their own books or journal articles more accessible.

Collaborate Across Disciplines

For a massive book totaling 2,300 pages and featuring 80 chapters from the top robotics researchers in the world, it is clear that the Second Edition of the *Springer Handbook of Robotics* stands out in terms of the amount of researchers involved and the sheer amount of information it contains. However, the team behind the handbook realized that their book could reach beyond core robotics disciplines.

“The special thing about robotics is the fact that it contains so many sub-disciplines,” Khatib said. “It is very broad, which means it brings people together from fields as diverse as mechanical engineering, biology, medicine, sociology, electrical engineering, and many other intersections.”

Gathering all of these diverse disciplines in one place was not easy but was essential to the success of the Handbook.

Siciliano said that one of the elements that separates their project is that, “nearly all the big names in robotics are there, and the book really represents a community of thought. Many chapters go across disciplines all the way to the boundaries of robotics.”

Siciliano and Khatib believe that the greatest advances in robotics are coming at the crossroads of disciplines, which is why they knew their book couldn't just feature experts in core robotics subjects. The two co-editors' approach benefits others working in scientific publishing. That's why it's important for researchers and academics to explore new ideas outside of their field that might push their own research area forward.

Although the handbook represented a massive collaborative effort across disciplines, it was essential for Siciliano and Khatib that their project was more than just a series of independent chapters representing disparate ideas.

“We were not just asking contributors to write something and hit 'send' followed by us just putting it all together into a

volume,” Khatib said. “We really tried to digest what is essential and critical in the different areas of robotics, and try to bring it to the robotics community in a way that would be useful to both newcomers and experts in a given field. That means at each stage of our book, whether it is design, planning or control, there is an overarching narrative that draws the reader deeper into where robotics is and where it is going.”

Encourage Teams to Step Outside of Their Comfort Zone

Siciliano and Khatib tried doing collaboration differently. Instead of letting authors pick their own collaborators, they often teamed up authors who had never worked together before to complete key chapters of the book.

Siciliano says that usually when a professor or researcher decides to produce a paper or piece of content, they pair up with colleagues they have a good working relationship with. While this approach can produce less conflict, it can also stifle the free flow of new ideas that were essential to the handbook’s success.

Look Beyond the Written Word

One of the most innovative elements of the *Springer Handbook of Robotics* is the inclusion of multimedia content to leverage the valuable written content of the book. This Multimedia Extension allows readers to interact with content on a new level. The book not only features a huge library of video content, but also uses promotional video content to engage with their audience.

One video features what Siciliano describes as the “latest and coolest developments in robotics in the last 15 to 16 years.” Their [10 minute video](#) consists of hundreds of hours of work, and required collaboration between Siciliano, Khatib, and Kroeger.

What is perhaps their most ambitious project was the creation of the Springer [Handbook of Robotics web portal](#) to host the Multimedia Extension of the book. The portal serves as a quick one-stop shop where contributors can easily upload videos that corresponded to specific chapters in the handbook.

Over time, they were able to collect over 700 videos for the book, which means that most of the chapters have supplementary video content. In order to ensure quality, they implemented a peer review system to ensure that the videos were appropriate with meaningful content that supports the book’s content.

Kroeger added useful features to the web portal, allowing contributors to upload descriptions, metadata, and videos, and then link those videos to specific chapters of the book. All videos and descriptions are available publicly under the least restrictive Creative Commons license, allowing anyone to reuse the videos for educational or commercial purposes.

“For robotics specifically as an applied science, it is very beneficial for readers to see videos that are then related to some theoretical foundation to really convey how things work,” said Kroeger, who worked on the web portal project while working at Google and X, both of which also partially funded the project. “Some videos are relevant from a scientific perspective, others are relevant from an educational perspective, and others from a historical perspective, and it is a very easy way for readers to comprehend the content on a higher level than simply reading what is in the text.”

In addition to the chapter videos, video tutorials were created by Springer for each of the seven parts based on a script prepared by the Part Editors. The Part Editors also outlined what was needed to produce the right kind of video sequences to fit the content of each chapter.

“For those who are a part of the robotics community, these are wonderful tutorials that benefit people, especially newcomers to robotics and researchers from other fields outside robotics,” said Siciliano. “The book helps move beyond a narrow field and show the greater research community the potential of robotics and how it relates to their own technical areas. The tutorials are backed by 11,000 bibliographic references, which gives you an idea of the depth of the research. We like to think of it as an entry point into the beauty of robotics.”

The Springer Handbook of Robotics App

In the course of the project, when it was clear that the videos might become a real success and support the Handbook tremendously, they decided to [develop a corresponding app for smartphone and tablets](#). With the app (available for [iOS](#)

and **Android**), readers use the camera on their phone or tablet, hold it to a page containing a special icon, and produce an augmented reality on the screen of their device. This allows readers to **watch videos** as they read along with the book.

“I can image that specifically the app may be highly relevant for journals and other books in the future,” said Kroeger. “The main idea is to provide illustrative content to readers in a very accessible way.”

As publishing explores new interactive technologies, apps like the one developed by Kroeger may find their way into new Springer products in the future, enabling authors to better connect with their audience to share knowledge.

Download the handbook apps here: <http://handbookofrobotics.org/app>

Watch video here: <http://handbookofrobotics.org/view-chapter/0/videodetails/843>

Use Social Media to Connect With Your Audience

Social media is now considered a key element of promotion for any book. The editorial and publishing teams created a social media campaign for the Handbook, which included the hashtag #handbooksofrobotics. Following the hashtag gave the team a centralized social media stream that everyone could follow for the latest updates on the book. Using the hashtag became a popular way for fans and contributors to share photos of the book and show off their own robot creations.



Joshua Marshall

@queensprofessor



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#handbookofrobotics is out! What better place to read Chapter 59 than underground on a really big mining robot!

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Kensuke Harada

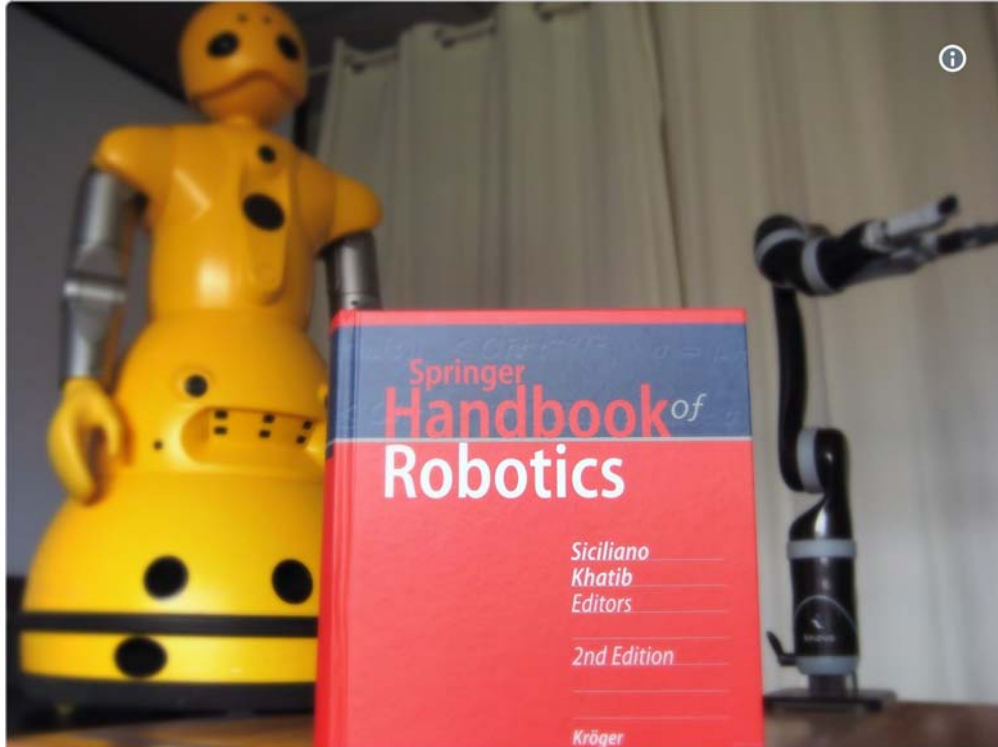
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Congratulations for the 2nd edition! I'm happy to contribute to Part G. [#handbookofrobotics](#)

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3

Siciliano realized the potential of harnessing the authors' networks through social media and their own academic and research circles. The team successfully leveraged the over 220 contributing authors.

"I asked every author to send me a photo with their robot and the Handbook," Siciliano said. "I also asked them to share those photos on their own social media profiles, whether it was Facebook or Twitter. The response was fantastic. Even friends of my own kids were just coming across these photos naturally and connected them back to their friend's father, which demonstrates how incredible social media can be for getting the word out."

They put together a [video collating all of those photos](#) and promoted it on social media to help demonstrate how strongly the community supported the book. The video features authors and fans with the handbook in classrooms and alongside their robot creations.

Youtube and Vimeo also play a vital role in reaching a larger audience. The Springer Handbook of Robotics team is highly active producing interviews, TED talks, tutorials and promotional content for their work and in turn, have shared this content widely on video platforms outside of their portal. [Siciliano's talk at TEDx](#) is the type of activity that not only helps raise awareness for his robotics research but also builds excitement about the handbook. He also attends Springer Nature events, providing keynote speeches and interviews, which enables people in the scientific publishing industry better understand and relate to the work Siciliano and his colleagues are producing.



The Importance of Personal Contact

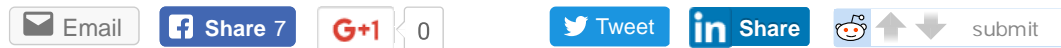
In the digital age, it's possible to produce a book with multiple collaborators who never actually see each other in-person. However, Siciliano and Khatib credit much of the success of the project to two handbook workshops that were organized before the book was published.

“The workshops were not only key for creating and building the individual chapters, but also to help ensure those chapters represent a coherent story within the whole context of the Handbook,” Khatib said.

The workshops featured technical discussions on robotics, explored what should and should not be in the book, and how to ensure continuity and harmony between the various chapters they had planned. The success of the workshops underline the benefits of meeting collaborators in-person. It not only helps provide an environment conducive to fruitful discussion, but can also jumpstart a project that is having trouble realizing its full potential.

The [Springer Handbook of Robotics](#) is just one of many groundbreaking titles published by Springer. For more information on publishing a book, visit our [book author page](#).

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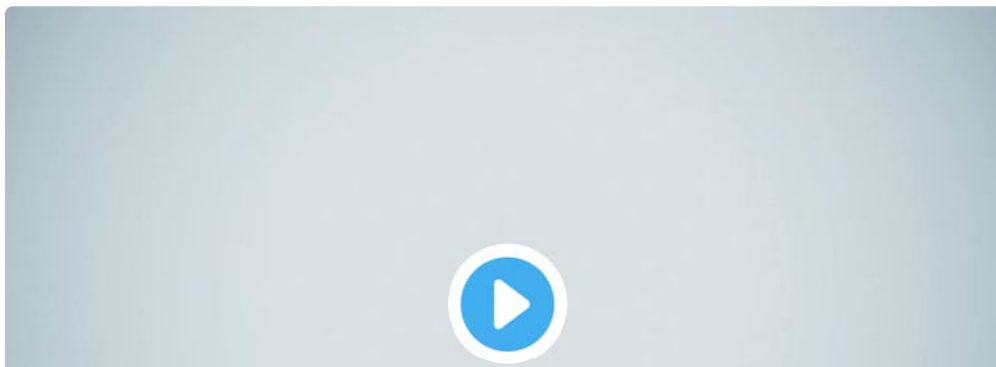


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