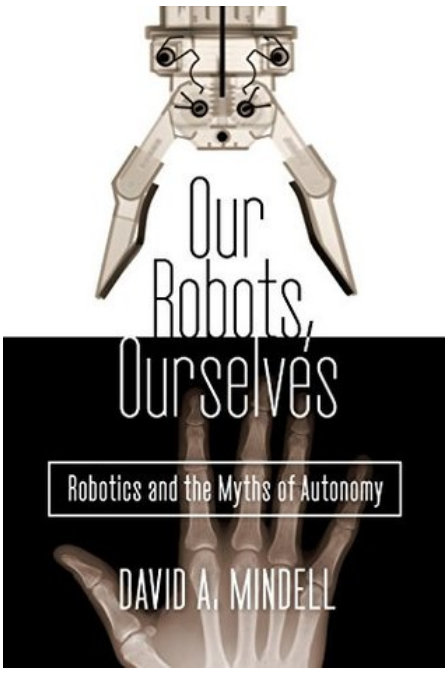

Our Robots, Ourselves: Robotics and the Myths of Autonomy

David A. Mindell

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“[An] essential book… it is required reading as we seriously engage one of the most important debates of our time.”—Sherry Turkle, author of *Reclaiming Conversation: The Power of Talk in a Digital Age*

From drones to Mars rovers—an exploration of the most innovative use of robots today and a provocative argument for the crucial role of humans in our increasingly technological future.

In *Our Robots, Ourselves,* David Mindell offers a fascinating behind-the-scenes look at the cutting edge of robotics today, debunking commonly held myths and exploring the rapidly changing relationships between humans and machines.

Drawing on firsthand experience, extensive interviews, and the latest research from MIT and elsewhere, Mindell takes us to extreme environments—high atmosphere, deep ocean, and outer space—to reveal where the most advanced robotics already exist. In these environments, scientists use robots to discover new information about ancient civilizations, to map some of the world’s largest geological features, and even to “commute” to Mars to conduct daily experiments. But these tools of air, sea, and space also forecast the dangers, ethical quandaries, and unintended consequences of a future in which robotics and automation suffuse our everyday lives.

Mindell argues that the stark lines we’ve drawn between human and not human, manual and automated, aren’t helpful for understanding our relationship with robotics. Brilliantly researched and accessibly written, *Our Robots, Ourselves* clarifies misconceptions about the autonomous robot, offering instead a hopeful message about what he calls “rich human presence” at the center of the technological landscape we are now creating.

From the Hardcover edition.

Our Robots, Ourselves: Robotics and the Myths of Autonomy Details

Date	:	Published October 13th 2015 by Viking
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From Reader Review Our Robots, Ourselves: Robotics and the Myths of Autonomy for online ebook

Robin says

This book was fine, but pretty limited in scope. I would say 50% (maybe more?) was about automation in aviation. Another 30-40% was about undersea robotics, with a smidgen of space and other automation.

I certainly learned about the myths of autonomy and the realities of what autonomous robots/vehicles can and can't do (spoiler alert: even with our tiny brains, we're a lot better at navigating through human-based spaces than self-driving cars, etc.).

Eliot Burdett says

The author intended this book as an in depth look at why fully autonomous robots and systems don't exist and may never exist in the sense that few if any "autonomous" systems can operate for very long without human intervention. He contends that robots have always had a symbiotic relationship with humans and the singularity may never actually happen.

Thought provoking and an interesting contrast to the theory that robots will soon take over the planet, but the book falls down a bit for me by not acknowledging (enough) that we are increasingly moving towards autonomy even if they are not there yet.

Ed Terrell says

"How many of you have killed a group of people, watched as their bodies are picked up, watched the funeral, then killed them too?" Brandon Bryant, suffering PTSD after being a Predator operator for 5 years.

"Video-game" warfare it's not. The sense of being involved in what is happening on the ground is more real than that of fighter bombers. Both philosophical and conceptual, “Our Robots, Ourselves” bucks against the going trend that autonomous robots will take away our jobs and our respectability. In fact, autonomy is not a foregone conclusion. Mindell, rather sees it as a continuum from machines that help us do our jobs better, faster and with more accuracy to fully autonomous robots. He stresses that full autonomy is not necessarily the end game but that multiple nodes exist involving human-machine combinations that are almost guaranteed to perform better.

Drawing on his experience at sea, we are given the example of Jason, a small semi-autonomous robot tethered to Alvin, a submersible with humans on board. This interesting combination explored the Titanic in 1986 and spent many years researching deep sea trenches.

In the air, we have pilots with heads up displays (HUDS), and more automated systems like their onboard autopilots capable of Cat IIIc landings. And while we might think of drones as “autonomous”, it is incorrect. They are flown by pilots who receive considerable training and most who have flight experience. It's all in the interface. We should note that while autopilots have made their way to space, all six Apollo missions

were landed manually, as was every space shuttle returning to earth on the 135 missions. Its hard to give up control sometimes. "Remember, you've only got one chance to land a shuttle."

Kirk Fatool says

Writing <\b>
When you start a book about robot and autonomy that was written by an engineer, you don't expect great prose. This, however, is a very pleasant surprise. There are a few times where, for a history major like me, gets a little technical.

Writing Quality: 9/10

Subject Matter <\b>

Malevolent AI has long been a topic of popular culture. Google has been blitzing the headlines with every small advance in their self-driving car. This book takes a more thoughtful approach asking, "How can humans and robots work together?"

Over the course of the book, Mr. Mindell explores the ways that robots have evolved, not towards autonomy, but toward cooperation with humans. The examples he highlights are "extreme environments" (space, deep ocean, and air). In all of his examples, he shows that human work with robots to push the bounds of science.

His arguments are very convincing. For example, pilots who rely on auto pilot, tend to be apprehensive when they don't know what the machine is "doing." Think of a programmable oven, you can set time it turns on and off and leave home. But as soon as you leave, what do you feel? Relief or apprehension? This is the phenomena Mr. Mindell applies to robotic/human systems. Furthermore, more and more gadgets are connected to WiFi and, after reading this book, I think it is to further our relationships with robots.

These issues are only going to be more relevant as time goes on.

Subject Matter: 10/10

Maria says

Mindell argues that the current debate and perceptions of autonomous robots does not reflect the human/robot interactions and that many fields including deep sea exploration and flight have chosen to give more control/direction to the robots than less even when the technology is available.

Why I started this book: Another audio professional reading list title under my belt.

Why I finished it: I thought that this was amazing. The comparison between and difference of autonomous

intelligence and augmented intelligence was not something that I had encountered before. The idea that we will use our robots to help humans make better decisions instead of just letting them do it themselves was empowering and encouraging. Fascinated by the idea that technology circles back around to allowing the human more control. Example: the V1 and V2 rockets versus the Predator drone.

Caution: My rating might be higher than others, because I just read the dull and ridiculous The Singularity is Near: When Humans Transcend Biology and the fact that I am a complete layman to current robotics, AI and computing fields.

Jeff Wilsbacher says

This was an interesting, well written book about semi-autonomous systems and their history, but the sub-title (and description) for the book seems really misleading. It should have been titled "The history, development and state of semi-autonomous systems" then it would be 5 stars... but it wasn't. I didn't find anything substantial in this book suggesting that autonomy wasn't on the horizon. The book starts with talk of the AirFrance flight 447 (and continues with analogous stories) ... but what is doesn't do is put this in a context of flights prior to automation. There are 2.8 accidents per 1,000,000 flights. Since 1972 there is a clear downward trend in airline accidents. It seems to suggest the measuring stick for self-piloting vehicles is "is it perfect" not "is it an improvement over existing systems/human error" which I did not like.

Abhishek says

A timely book on the question of automation and the role of humans in days to come. Surprisingly the book never touched on AI. It spoke of the three types of machines - operated directly by humans, controlled remotely or autonomous. It is a great treatise on how each of these interfaces is evolving rapidly and working synergistically rather than at the expense of each other. The stories in the book are fascinating, ranging from deep sea explorations to the vast and hostile space environments, and everything in between.

Julie says

At times a little dry because of the subject matter, but overall fascinating exploration of the relationship between humans and robots. It altered my opinions on driverless cars for sure.

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arterialturns says

A compelling, fascinating read on the changing concept of autonomous technology in our lives, it's current and potential future applications, and how our continuous interaction with technology shapes and redefines our relationship with robots and other automated tech. This book clears up myths about poorly named technology, addresses conflicting feelings about using remote and automated technology in various fields, and offers real world examples about how the evolution of so-called autonomous technology will potentially expand the human experience in exciting, unprecedented ways. The author presents it all in easily understandable language for the layman (read: me!), showing the various theaters where autonomous

technology is evolving in sea, air, war, and space. I found it extremely engaging, and certainly thought provoking. One can readily see how the conversation started by this book can also apply in so many other arenas. A reading of this book could also serve to inspire those involved at various levels in many disciplines, if not to simply serve to make one reconsider the role of robots and other technology we interact with now and in the near future. I recommend it.

Eli says

See my full review at http://rustbeltphilosophy.blogspot.co...

Natalie says

Great book, very insightful

Anatoly v01 says

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Tim says

David Mindell’s “Our Robots, Ourselves: Robotics and the Myths of Autonomy” is an interesting and very readable review of the history and state of the art of robotics autonomy?. His main point is that robots allow us to expand and extend our own human consciousness, but that they cannot replace the human element or even exist without it. He persistently refers to the “myth” of autonomy, yet it seems that his real hang-up is with the concept of fully-realized AI rather than the progress that relieves human operators from mundane or overwhelming tasks. Much is made of the physical location and identity of the human operator, as well as how large a latency (time delay) separates the operator from the robot.
Many pages are spent describing how computers have enhanced pilots' abilities with features like Head-Up displays?, or enabled military strikes and reconnaissance with Predator/Reaper technology. Of space robots, he focuses on the final HST repair mission and on the Mars rovers. The shuttle's Canadarm is only mentioned in passing, and ISS robotics are ignored completely despite the examples that could have been drawn as "ground control" relocated the operators for most ISS robotic operations from astronauts in space to flight controllers in Houston or Montreal.
His sharpest attack is on the concept of self-driving cars and he heaps criticism on Google's work to take human drivers completely out of the loop. Ironically, this book's release happened to roughly coincide with Tesla's pushing the first public beta of their "auto-pilot" functionality - the first step down what is certainly a long path. Although Tesla is never mentioned, Mindell argues that urban driving is so much a series of

personal interactions that computers would not be able to succeed there. We'll see...

Randy says

Outstanding companion to John Markoff's book "Machines of Loving Grace". Markoff suggests that the appropriate focus of AI development will/should be on IA, or Intelligence Augmentation -- using computers to improve human performance -- and not on Strong AI, or fully autonomous robots. Mindell not only agrees with such an emphasis, but through decades of experience as a MIT professor of Aero/Astronautics, he has designed and built numerous semi-autonomous flying and submersible teleoperated robot vehicles. He offers a wealth of examples and insight into the host of challenges that fully-autonomous AI demand, and generally, do not warrant. (I.e., Full AI is not as valuable as is generally assumed.) Instead, he emphasizes the need for AI to help build *better* tools to support human needs, and not *replacement* machines (or replacement humans). This is a book every aspiring AI fan or professional should read.

Artur Coelho says

O ponto mais interessante dos argumentos sobre robótica autónoma deste livro é o equilíbrio que mantém entre visões de deslumbramento e apocalípticas do impacto social e histórico destas tecnologias. Coisa rara. O mas habitual é ler-se um deslumbramento total, com a robótica como mito salvífico que irá libertar a humanidade do jugo do trabalho sem sentido (pensem Hans Moravec, e todos os que postulam vidas de ócio possibilitadas por servos mecânicos). Ou, corrente mais contemporânea e influenciada pela crise global que atravessamos, visões tenebrosas onde software de automação e robots pulverizam empregos e carreiras, beneficiando elites dominantes enquanto condenam uma grande parte da humanidade à indigência. Já Mindell tem os pés mais assentes na terra, especialmente porque se torna notório ao longo do livro que não é teórico ou economista, mas sim engenheiro com uma larga experiência nalguns dos mais icónicos projectos de robótica autónoma. Quando se participa nas equipas de trabalho multidisciplinares que constroem e operam robots autónomos, a visão do omnipotente *robot overlord* desvanece-se face às fiabilidades, avarias, inconsistências, *bugs* de sistemas que obedecem primariamente às leis de Murphy.

Mindell conduz-nos através de algumas das vertentes de investigação neste campo, passando pela automação de sistemas aeronáuticos, robots submersíveis, drones militares, veículos autónomos e exploração espacial. São retratos que tece com detalhe por vezes excessivo (há parágrafos que são melhor legíveis na diagonal, o argumento está feito, os exemplos dados, o resto é acessório, interessante mas não fundamental). A imagem que transparece é uma de simbiose entre máquinas e humanos, em vários níveis. Sublinha o quanto a dependência de sistemas automatizados pode prejudicar o sentido crítico de quem os utiliza, com consequências potencialmente fatais. Mostra que as possibilidades da telepresença criam um sentimento de imersividade nos utilizadores. E, fundamentalmente, aponta para a omnipresença do factor humano mesmo na robótica mais avançada. Somos nós que a concebemos e programamos, e as nossos pressupostos influenciam directamente a sua concepção. Este é o argumento mais pertinente de um livro intrigante, que segue um caminho sóbrio e intermédio, ancorado na experiência prática, na reflexão sobre práticas e consequências da robótica e automação.
