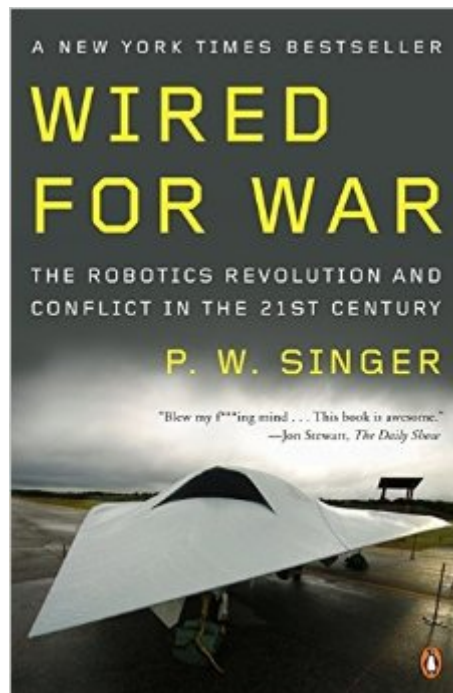


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Wired For War: The Robotics Revolution And Conflict In The 21st Century



Synopsis

In *Wired for War*, P. W. Singer explores the greatest revolution in military affairs since the atom bomb: the dawn of robotic warfare. We are on the cusp of a massive shift in military technology that threatens to make real the stuff of *I, Robot* and *The Terminator*. Blending historical evidence with interviews of an amazing cast of characters, Singer shows how technology is changing not just how wars are fought, but also the politics, economics, laws, and the ethics that surround war itself. Travelling from the battlefields of Iraq and Afghanistan to modern-day "skunk works" in the midst of suburbia, *Wired for War* will tantalise a wide readership, from military buffs to policy wonks to gearheads.

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Customer Reviews

I work as an engineering psychologist in a U.S. Army organization that is in the forefront of R&D on military robotics and automated command and control systems. Hence, I read P.J. Sanger's *Wired for War* with considerable interest. I can relate to much of his discussion on an experiential basis. We routinely encounter and try to provide solutions for many of the problems Sanger discusses. As a point of interest, I was the technical lead on an Army effort looking at human performance contributors to the fratricides by the Patriot air defense missile system during the recent Gulf War mentioned on page 125. As is usually the case in a casual summary of complex events, Sanger's description of these events is superficially accurate, but there is a lot more to the story. Also, I've been told that his remark on page 197 about the radar on the DIVAD gun locking onto the exhaust fan of a port-a-potty is an urban legend. I've heard about this alleged incident, but I've never been

able to find anyone in the Army air defense community who ever witnessed it personally. We work tests on that class of systems all the time, so we know the players. Overall, I thought Sanger did a good job of describing the state of the art in robotic military systems and addressing the potential sociological and psychological impact of using these systems in current and future military operations. From my perspective, the central operational issue in using armed robotic systems in combat is balancing autonomy with effective human control (the focus of Sanger's Chapter 6.). In my view, he correctly refers to this topic as the "Issue-That-Must-Not-Be-Discussed." I was particularly struck by the difference between the attitude of those having the most on-the-ground experience with these systems (e.g.

I first heard the author talking on NPR about this topic, and both that interview and the first chapter of this book show his excitement and deep interest and understanding of this subject. For such a weighty hardback, it's remarkably hard to put down, and each section evolves intelligently from the last. I particularly enjoyed the references to modern culture, given that robotics has largely been a subject of science fiction in the last few decades rather than yielding anything practical in reality. Well, at least so I thought - it turns out that over 12,000 robots are at war in Iraq and Afghanistan as we speak. The companies producing these machines were spurred by the very real necessities of dealing with guerrilla warfare, and avoiding the human toll associated with such difficult environments. Through a combination of human-controlled and artificially-intelligent hardware, these robots back up our soldiers and provide a super-human level of robustness and accuracy. The author raises the complex moral questions associated with having machines killing people on the frontline, and the issues that arise when mistakes occur. There's also a fascinating discussion of stress disorders that remote pilots are suffering from - these men and women sit in offices in the US, controlling machines on the battleground far away, and return home for dinner every day after "a day's fighting". It's also interesting to look at the design of some of the machines and their control interfaces, many of which look like Wall-E with a machine gun. Weapons companies have copied controllers from the Playstation and Xbox, taking advantage of a generation that is comfortable using these devices without extensive retraining.

Singer paints a picture of vastly capable robots and software that are fielded right now. As someone working in the robotics field and trying to provide autonomous behaviors for government applications, I see how far this is from reality. As is often the case, however, reality doesn't create much buzz or sell many books. This book feeds the popular misconception that robots are smart and

getting smarter. I have a brother-in-law that was asking me about my work and how I'd done some simple AI design for computer board games for fun a long time ago. He made the comment, "I bet all that is coming in handy in your current job". I had to tell him that no, creating strategy-based behaviors for Risk has almost zero relevance to modern robotics -- we're nowhere close to a strategic level of thinking. As an industry, we're still at the level of getting a robot to move from point A to point B consistently and without running into anything. The videos on YouTube posted by researchers show some incredible things, but research is almost always 10-15 years ahead of a solid, marketable solution (toy problems in the lab are comparatively easy, real-world complexity is HARD). The reality is this: Most mobile robots in theater right now are glorified remote control cars, operated by soldiers less than a few hundred meters away via cameras mounted on the robots. Singer talks a great deal about the Foster-Miller Talon and iRobot Packbot, because they are far and away the most common and prominent platforms in theater. However, the examples of autonomy he gives never deal with those platforms. Why? Because they have almost no autonomy for the units in the field. Autonomy for mobile robotics is HARD. Very hard.

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