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NEUROSCIENTISTS can take pride in the many contributions that their work can make to enhancing human life. These include improved treatment of illness, better education, creation of sophisticated information-processing machines and new insights into ancient human mysteries such as the nature of the mind and the self.

But there is also a dark side to neuroscience. Like any body of knowledge, it can be used for good or ill. Yet neuroscientists often seem unaware of the potential of their field to threaten or damage human life.

Aggressive wars and coercive interrogation methods such as torture are two particularly egregious ways in which human life is damaged or threatened. Not only are both immoral, they are also illegal under national and international laws. At the Nuremberg trials following the defeat of Nazi Germany, aggressive war was judged to be not only an international crime, but the supreme international crime. Prevention of such wars was a major reason for the founding of the United Nations.

Neuroscience can be of service to both aggressive war and to coercive interrogation methods. Potential contributions to aggressive war include pharmaceutical agents that enhance the effectiveness of one nation's soldiers or damage the effectiveness of their enemy's. In addition, war is becoming more and more dependent on robots such as the MQ-9 Reaper unmanned aerial vehicles now being used in Afghanistan and elsewhere. Autonomous robots that can move, perceive, decide and kill on their own are in the offing, as political scientist and military commentator Peter W. Singer describes in his book *Wired for War*. Neuroscientific work on motor control, perception, and cognition can be readily applied to the construction of such robots.

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Potential neuroscience contributions to torture are also clear. These include the creation of drugs that cause extreme pain, anxiety or unwarranted trust, as well as manipulations such as focused brain stimulation or inactivation.

A pledge is being circulated among neuroscientists around the world with the aim of creating greater awareness of the potential dark side of neuroscience. Those signing the pledge commit to two things. First, to make themselves aware of possible applications that would violate international law or human rights, and second, to act in accordance with national and international law by refusing to knowingly participate in the application of neuroscience to such violations. Thus signers of the pledge are committing to acting responsibly, morally and in obedience to the law.

Once signatures have been gathered, neuroscience organisations, such as the Federation of European Neuroscience Societies and the Society for Neuroscience, will be asked to amend their ethics statements to forbid knowing participation in such applications.

Similar pledges and petitions have been signed by scientists from other disciplines. The majority of members of the American Psychological Association have signed a [petition](#) declaring that "psychologists may not work in settings where persons are held outside of, or in violation of, either International Law (e.g. the UN Convention Against Torture and the Geneva conventions) or the US Constitution". The governing bodies of the American Medical Association and the American Psychiatric Association have also condemned participation in torture.

Many anthropologists have signed a [pledge](#) issued by the Network of Concerned Anthropologists in relation to the US's "war on terror", declaring that "anthropologists should refrain from directly assisting the US military in combat, be it through torture, interrogation or tactical advice". The American Association of Anthropology's executive board has issued a [statement](#) in accord with the pledge.

Unlike psychologists, physicians or anthropologists, neuroscientists are unlikely to provide direct assistance to combat forces fighting an aggressive war or participate directly in torture. They could provide tools for such purposes, however, and thus act as accessories to the crime.

Opinions may vary as to whether a given application constitutes torture and whether a given war is an aggressive war. Here one can be guided by international law as embodied in the UN charter, the Geneva conventions and the Convention Against Torture. Aggressive war, for example, is defined as a war that is not in self-defence, with the corollary that all peaceful means of resolving a conflict must be pursued before a war is begun.

Opinions will be especially varied concerning aggressive war, but the pledge simply commits signers, once convinced that a war is aggressive, to refuse to provide the government conducting the war with additional tools.

Signing this pledge will not stop aggressive wars or human rights violations, or even the use of neuroscience for these purposes. But by signing, neuroscientists will help make such applications less acceptable.

The pledge gives neuroscience the opportunity to join with other professions in moving away from militarism and violence toward a culture of peace and respect for human life. Professionals and their organisations have a special responsibility in this regard, because they are members of a respected elite with knowledge and influence.

Our goal as neuroscientists and human beings should be to create a culture that encourages applications that enhance human life while discouraging those that damage it. If you are a neuroscientist and you agree, sign the pledge.

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