Dark Horses in the Lethal AI Arms Race

Notable mentions that did not make the top five are India, Israel and Japan. Each of these three countries is already a major arms producer, and is actively developing autonomous robotic systems for military use (Boulanin & Verbruggen, 2017).

While India is currently developing unarmed, non-lethal military robotics, it has yet to take a firm policy stance on the development of lethal autonomous weapons (CSKR, 2018). However, India remains poised for potential rapid AWS development due to its large investments in dual-use technology and the remarkably high level of trust its citizens have in AI, 50%, which was the 4th highest rate out of the 24 countries surveyed (Ipsos, 2018). India has a relatively modest defense budget capacity compared to its size, with just $66 billion, but is projected to spend $2.5 billion on drones by 2021 and with the recent re-election of Prime Minister Narendra Modi, India is unlikely to take a less aggressive stance towards its regional rivals (SIPRI, 2019; Statista, 2019). India is a world leader in AI as it has the third most AI experts in the world with more than 17,000, including over 400 of the world's best, along with more than 75,000 total AI-related publications (CISTP, 2019a, 2019b). Additionally, India had 4.7% of the world's investment and financing in AI from 2013 to 2018, coming in third behind only China and the United States (CAICT & Gartner, 2019).

Israel is also a major player in the autonomous weapons field and favors the development of fully autonomous weapons (CSKR, 2018). Beyond an estimated $16 billion spent annually on defense, there is not much publicly available data on Israel (SIPRI, 2019). However, it is clear that being surrounded by historically hostile countries, Israel has consistently sought to even the odds through technological supremacy, with defensive advancements such as its Iron Dome missile defense system. Aside from South Korea, Israel is the only other developer of robotic sentry weapons in the world, with its Raphael Sentry Tech, a robotic sentry weapon which they employ along the Gaza Strip (Boulanin & Verbruggen, 2017).

Japan is a sleeping giant with regard to autonomous weapons development. Japan makes large investments in both robotics and AI development and is poised to become a major player if Prime Minister Shinzo Abe is able to change Japan's pacifist constitution, which may become more likely as tensions with an increasingly assertive China continue over the disputed Senkaku islands. Evidence of this trend can be seen in Japan's 2016 Defense Technology Strategy, which emphasizes the need for autonomous technologies, particularly underwater autonomous systems, to be developed for military use (Boulanin & Verbruggen, 2017). Despite its pacifist constitution, Japan still manages to spend $46 billion annually on defense, with $1.5 billion on research and development (SIPRI, 2019). Japan has more than 3,000 AI experts, including more than 650 of the world's best, and is ranked 4th in the world for total AI publications with over 94,000 (CISTP, 2019a, 2019b).

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