



1

Robotics

Military robotics is materialized by unmanned vehicles (air, ground, water) that can be remotely controlled or act fully autonomous with no person in the decision-making loop. The use of robotic systems makes it possible to access areas inaccessible to human beings, facilitates permanent surveillance, as well as assistance to soldiers in transporting equipment and automated logistics convoys.

2

Human Enhancement

Soldiers Systems refers to the augmentation of individual human abilities using artificial means such as robotic exoskeletons, smart textiles, drugs, and seamless man-machine interfaces. Uses include capacity to endure extreme environments, health monitoring and care provision, and decision making at individual level.

3

Augmented & Virtual Reality

Augmented reality is the fusion of the real and virtual worlds to produce new visualization environments where physical and digital objects coexist and interact in real time. The applications allow soldiers and pilots a better understanding of their direct environment, the possibility of training in realistic environments as well as learning opportunities and remote work assistance.

4

Additive Manufacturing

Additive manufacturing (or 3D printing) is the process of manufacturing layer by layer (addition of material) a solid object obtained from a digital model. This technology makes it possible to create almost any shape, unlike standard extrusive machining (material removal). Additive manufacturing is used for rapid prototyping, repair of deployed military equipment, creation of customized and unique parts.

5

Artificial Intelligence

Artificial intelligence refers to the ability of machines to behave like human beings in terms of learning, reasoning, planning and action. This technology is being implemented in a growing number of fields. Whether in decision support, voice or pattern recognition enabling a machine to understand its environment, the algorithms developed are able to optimize themselves without human input. This technology is the basis of any autonomy in future products (physical or computer).

6

Internet of things

Sensors are omnipresent. Coupled with more or less significant computing power, they offer the possibility of detecting, monitoring, analyzing and even acting remotely thanks to real-time data transmission, data processing, decision-making and connection to physical actuators. The presence of a processor and their connectivity make them the favorite target of cyber attacks.

7

Hypervelocity Systems

Hypersonic vectors can be planes, missiles or spacecraft moving at a speed greater than Mach 5, 5 times the speed of sound. The speed achieved makes the current interception capabilities obsolete, offering an extremely reactive strike capability regardless of the target's distance.

8

New Materials

New materials are characterized by unique and exceptional properties. These are manufactured using nanotechnologies and synthetic biology in particular. More resistant, lighter, more conductive, and changing shape, color and/or other properties responding to a particular stimulus, they open the door to new products and to the most innovative applications.

9

Electromagnetic Spectrum

Electromagnetic Dominance is the ability to use more of the spectrum, to share the spectrum more efficiently, to protect own forces' use of the spectrum and to deny enemy use. Considering the importance of the digital world and the growing exchange of electronic information, security, reliability and resilience are the indispensable foundations of any operational conduct.

10

Quantum Computing

Advances in quantum computing will allow to create processors that are significantly faster (a million or more times) than the ones we use today. The computing power released would instantly render all traditional cryptographic methods obsolete, challenging data security and increasing the pressure of cyber attacks. Cognitive computing simulating the process of human thought will be one of the winners of this revolution and will open the door to a new generation of artificial intelligence.

11

Space Technologies

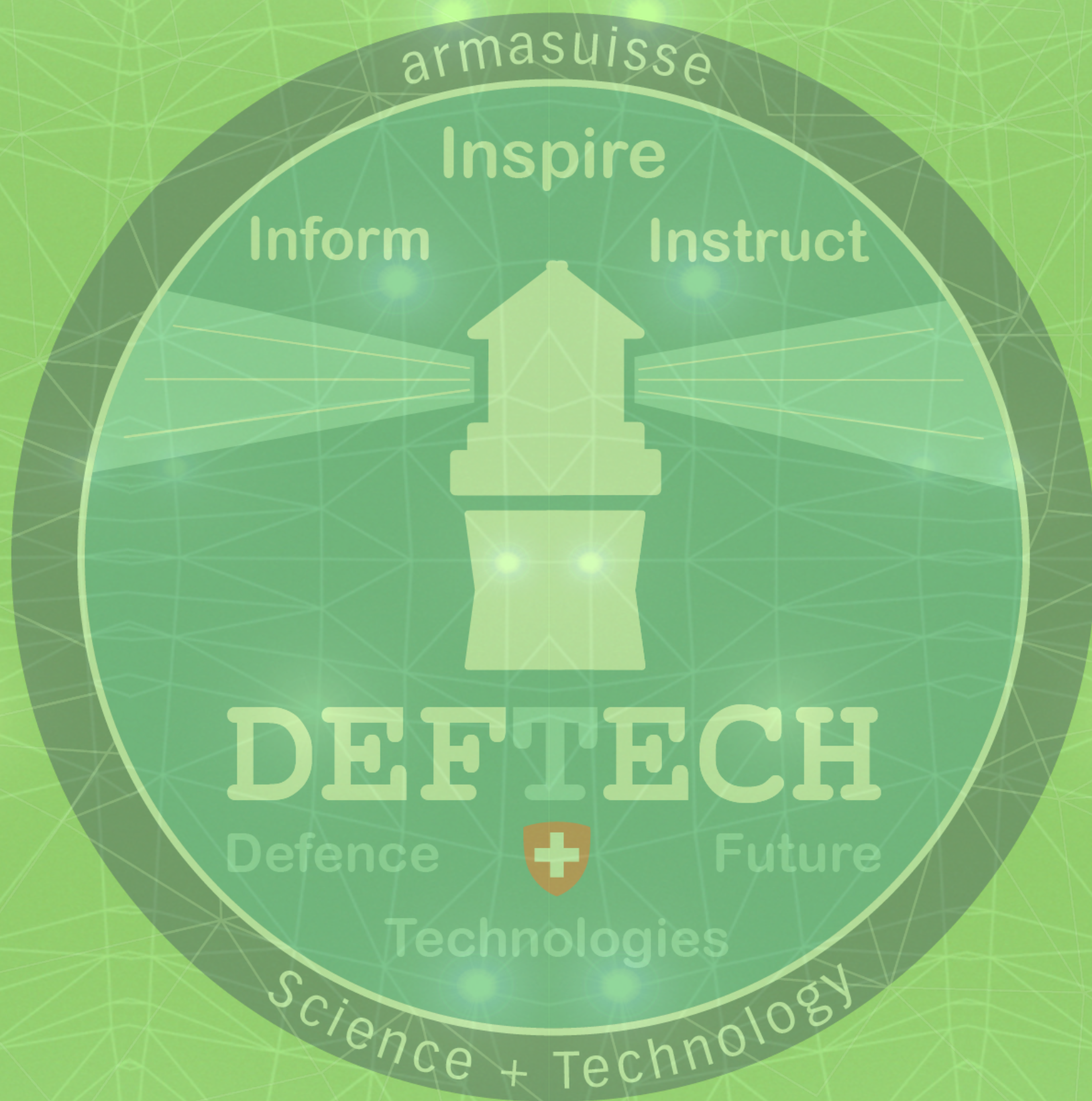
Recent developments in space technologies make multiple services such as satellite launches, telecommunications and very high resolution Earth observation accessible at lower costs. This dynamic offers great possibilities but also creates a need for control and coordination to ensure the viability of all objects inhabiting a limited circumterrestrial space.

12

Synthetic Biology

Synthetic biology aims to manufacture biological components and systems that do not exist in nature, as well as to modify existing biological elements. Making soldiers more resistant, biologically producing certain components, modifying or eradicating certain viruses; the opportunities are endless, but what are the long-term consequences and dangers?





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