

On integrated security and safety

JiangXing Wu 

Purple Mountain Laboratories, Nanjing 211111, China

Citation Wu JX. On integrated security and safety. *Security and Safety* 2022; 1: E2022002.
<https://doi.org/10.1051/sands/2022002>

With the ubiquitous application of digital, intelligent, and network technologies, the connotation and denotation of functional safety have gone beyond the conventional reliability scope of dealing with functional or system failures caused by random ineffectiveness in the mechanical and electric age. In order to guarantee the functional safety for cyber physical systems (CPS) in cyberspace in the information age, it is impossible to avoid challenges of cyber security, especially “unknown unknown” network threats and attack events aimed at CPS systems, software/hardware facility vulnerabilities or loopholes and backdoors. Such challenges have a terrible ghost-haunted nature and attributes that cannot be expressed through mathematical models. They have gone beyond the random hypothetical premises of classical functional safety theories and mathematical nature to be expressed through probability, as well as shaken the foundations of conventional reliability theories, technological methodologies, and practice norms.

Now the cyber security and functional safety in the key infrastructure of digital society are intertwined or intermingled and are becoming more and more difficult to separate. There exist “double-skin” functional safety and cyber security governance modes, the functional failures of which are of completely different nature. They cannot be expected to acquire quantitative-design and verifiable “generalized functional safety” [1] features through “divide-and-rule” governance structures and mechanisms due to the incompatible logical problems and paradoxes in prerequisites and hypothetical premises. Therefore, it is urgent to develop integrated scientific theories, technological methodologies, and practice norms to deal with generalized functional safety problems. The scientific and technological community needs a high-level academic exchange platform focusing on theoretical research and technological developments in the interdisciplinary fields of cyber security and functional safety.

We therefore launch *Security and Safety* (hereafter as S&S), an international and peer-reviewed journal with the support of the Chinese Academy of Sciences. The journal will be published in open access to serve as an open communication platform for scholars worldwide to share and discuss novel research in all aspects of the intersection and integration field of cyber security and functional safety.

S&S aims to quickly publish high-quality innovative and applicable research work in all fields that involve the intersection of cyber security and functional safety as well as views and comments on the frontier and development direction to guide and promote the integration and progress of cyber security and functional safety in multiple fields in the intelligent era.

Our vision for S&S is that it will become a leading interdisciplinary journal focusing on the intersection of cyber security and functional safety to promote interdisciplinary innovation, benefit the international community, empower the digital economy, and guard the smart era in the future.

We warmly welcome experts and scholars from all over the world to contribute novel and enlightening manuscripts and share your thoughts and results to support the development of S&S. Your support will be greatly appreciated!

References

- [1] Wu JX. Problems and solutions regarding generalized functional safety in cyberspace. *Security and Safety* 2022; 1: 2022001.

* Corresponding author (email: ndscwjx@126.com)