

# Evolution of Computer-based Systems

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## **Abstract**

Evolution is one of the major issues affecting system dependability as well as engineering activities and environments. The most common understanding considers evolution as a phenomenon that needs to be limited. By contrast this talk takes into account evolution as a necessary phenomenon for computer-based systems. This talk reviews a taxonomy of evolution identifying a conceptual space in which evolution manifests in different forms. The taxonomy provides a conceptual framework to analyse evolutionary phenomena of computer-based systems as well as models of evolution and their limits. The taxonomy of evolution points out dependability aspects of computer-based systems. The discussion of evolutionary phenomena emphasises how they differently relate to the dependability of computer-based systems.

The talk then shows an empirical investigation of a case study focusing on requirements evolution.

In conclusion, this talk takes account of evolutionary phenomena of computer-based systems and relates them to dependability. This provides a conceptual framework to analyse evolution and its influence on dependability.