

# A Methodology for Test and Correction of Software Errors in Complex Software Systems

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## Abstract

The globalization of the market, the fast evolution of technologies and the need for innovating currently push the firms to be fallen under a permanent process of progress, at each level of its organization [Goldratt, 93]. Consequently, companies must consider strategies that reduce the time required to take a product from concept to market. According to Midler and Giard [Midler C. & Giard V., 93], the capacity to quickly develop new products (software) is at the heart of modern competitive strategies. Computer software has gradually become an indispensable element in many aspects of our daily life and an important factor in numerous critical applications such as nuclear plants, medical monitoring control, real-time military and air traffic control [Pham H., 02]. As from now, the firms are devoted to the software development with an aim of optimizing their performances in production. However, the development of software cannot be done without uncertainties. The question is today to know how make reliable this development by minimizing the probabilities of programming errors.

**Keywords:** software, software reliability, Markov model, mathematical model

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