

CHAPTER 30

MATHEMATICAL SCIENCES OPERATIONAL RESEARCH

Doctoral Theses

399. JAGVINDER SINGH
Modelling Quality Assessment of Software Reliability and Multi-Upgradations.
Supervisors : Prof P K Kapur and Dr. Ompal Singh
Th 18147

Abstract

Now a days, almost everone in the world is directly or indirectly affected by computer systems. In recent years, however, many of these systems have come to depend on software for their correct functioning; as a result the reliability of software has become more and more important. Software is a relatively new industry, less than fifty years old, and it has spent much of that time trying to figure out how to create reliable software applications with minimum errors. The work done in this thesis is focused on an important branch of software reliability engineering (SRE) namely reliability modeling. Apart from development new SRGM (Software reliability growth models) based on NHPP (Non-Homogenous poisson process) and SDE (Stochastic differential equation) we have developed some multi upgradation models that take into account the features enhancements and add-ons. Some basic concepts of software development process, reliability modeling, and data analysis related to the understanding of the research work are introduced.

Contents

1. Introduction.
2. SDE based SRGMS with imperfect debugging.
3. Componet - specific testing-effort function based software.
4. Irregular fluctuation based multi up-gradation models
5. Modeling multi up-gradation reliability growth with imperfect debugging. Conclusions.

400. RAVI KUMAR
Software Reliability Modelling: A Unified Approach.
 Supervisor : Prof. P K Kapur
 Th 18148

Abstract

With the advent of the computer age, computer , as well as the software running on them, are playing a vital role in our daily lives. We may not have noticed, but appliances such as washing machines, telephones, TVs, and watches, are having their analog and mechanical parts replaced by CPUs and software. The computer industry is booming exponentially. With a continuously lowering cost and improved control, processors and software controlled systems offer compact design, flexible handling, rich features and competitive cost. Like machinery replaced craftsmanship in the industrial revolution, computers and intelligent parts are quickly pushing their mechanical counterparts out of the hour. Software reliability is a field of great concern in the recent years. Research has been conducted in software reliability engineering over the past three decades and many software reliability growth models (SRGM) have been proposed. In this thesis, we have developed a more general approach for developing software reliability models.

Contents

1. Introduction. 2. Unified scheme for developing testing effort dependent software reliability growth models. 3. A unified approach for discrete software reliability growth modeling. 4. Unified framework for discrete software reliability growth modeling with change point and a related release time problem. 5. Software reliability growth models for open source software. 6. Conclusion.

M.Phil Dissertations

401. AGGARWAL (Sugandha)
Planning and Placement on Advertisements in Various Media.
 Supervisor : Dr. P C Jha
402. ASHISHANAND
On the Development of Deduction-Correction Software Reliability Growth Models.
 Supervisor : Dr. Ompal Singh

403. BINAY KUMAR
Optimal Inventory Policy for Various Levels and Supply Chain Management.
Supervisor : Dr. P C Jha
404. BATRA (Megha)
Price Change Anticipation Models and Price Dependent Demand Models in Inventory Management.
Supervisor : Dr. Chandra K Jaggi
405. DEEPIKA
Coordination in Two Level Supply Chain Management.
Supervisor : Dr. P C Jha
406. GAHLOT (Naveen)
On First Order and Second Order Symmetric Duality in Mathematical Programming.
Supervisor : Dr. Pankaj Gupta
407. GOEL (Sakshi)
Some Aspects of Linear Complementarity Problem and its Generalizations.
Supervisor : Dr. Pankaj Gupta
408. GUPTA (Stuti)
Inventory Management : Vendor Managed Inventory (VMI).
Supervisor : Dr. Chandra K Jaggi
409. PALLAVI
Study of Software Reliability Growth Model with Fault Dependency and Debugging time Lag.
Supervisor : Dr. Ompal Singh
410. SHARMA (Amita)
Some Solution Procedures for Fuzzy Multi-Objective Optimization with Application.
Supervisor : Dr. Pankaj Gupta