Nasa Software Engineering Requirements

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Introduction to Software Project Management
Createspace Independent

Publishing Platform

A Report on NASA Software Engineering and Ada Training Requirements

Seven Processes That Enable Nasa Software Engineering Technologies

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Progress In Astronautics and Aeronautics

IEEE Readership: Graduate students, researchers, programmers, managers and academics in software engineering and knowledge engineering.Key Features: There are no other handbooks in the market in this area.Keywords:

Large Space Structures & Systems in the Space Station Era

Springer Science & Business Media

Requirements engineering is the process by which the requirements for software systems are gathered, analyzed, documented, and managed throughout their complete lifecycle. Traditionally it has been concerned with technical goals for, functions of, and constraints on software systems. Aurum and Wohlin, however, argue that it is no longer appropriate for software systems professionals to focus only on functional and non-functional aspects of the intended system and to somehow assume that organizational context and needs are outside their remit. Instead, they call for a broader perspective in order to gain a better understanding of the interdependencies between enterprise stakeholders,

processes, and software systems, which would in turn give rise to more appropriate techniques and higher-quality systems. Following an introductory chapter that provides an exploration of key issues in requirements engineering, the book is organized in three parts. Part 1 presents surveys of state-of-the art requirements engineering process research along with critical assessments of existing models, frameworks and techniques. Part 2 addresses key areas in requirements engineering, such as market-driven requirements engineering, goal modeling, requirements ambiguity, and others. Part 3 concludes the book with articles that present empirical evidence and experiences from practices in industrial projects. Its broader perspective gives this book its distinct appeal and makes it of interest to both researchers and practitioners, not only in software engineering but also in other disciplines such as business process engineering and management science.

29th Annual IEEE/NASA Software Engineering Workshop, 6-7 April 2005, Greenbelt, Maryland

BiblioGov

Provides general guidance and information on systems engineering that will be useful to the NASA community. It provides a generic description of Systems Engineering (SE) as it should be applied throughout NASA. The handbook will increase awareness and consistency across the Agency and

advance the practice of SE. This handbook provides perspectives relevant to NASA and data particular to NASA. Covers general concepts and generic descriptions of processes, tools, and techniques. It provides information on systems engineering best practices and pitfalls to avoid. Describes systems engineering as it should be applied to the development and implementation of large and small NASA programs and projects. Charts and tables.

Requirements Engineering for Software and Systems

DIANE Publishing

The purpose of this NASA Software Management Guidebook is twofold. First, this document defines the core products and activities required of NASA software projects. It defines life-cycle models and activity-related methods but acknowledges that no single life-cycle model is appropriate for all NASA software projects. It also acknowledges that the appropriate method for accomplishing a required activity depends on characteristics of the software project. Second, this guidebook provides specific guidance to software project managers and team leaders in selecting appropriate life cycles and methods to develop a tailored plan for a software engineering project. Unspecified Center SOFTWARE ENGINEERING; COMPUTER PROGRAMS; INFORMATION RESOURCES MANAGEMENT; COSTS; COMPUTER PROGRAMMING; COMPUTER SYSTEMS PROGRAMS; EVALUATION; QUALITY; WORKSTATIONS...

Management, a Bibliography for NASA Managers

Springer Science & Business Media

The proceedings from the November 2001 conference in Greenbelt, Maryland comprise 21 papers on software aspects of aerospace systems,

experience management systems, security, risk analysis, project planning and estimation, cost-benefit analysis, Smerfs, natural language requirements, requirements validation, erroneous requirements, value assessments, verification and validation of autonomous systems, reliability modeling, and collaborative test management. Case studies and the results of empirical research are featured. Abstracts are provided for each paper. A CD-ROM is included.

Name index only. Annotation copyrighted by Book News Inc., Portland, OR.

Software Requirements

National Academies Press

This volume was published in honor of Stefania Gnesi ' s 65th birthday. The Festschrift volume contains 32 papers written by close collaborators and friends of Stefania and was presented to her on October 8, 2019 one-day colloquium held in Porto, Portugal, The Festschrift consists of eight sections, seven of which reflect the main research areas to which Stefania has contributed. Following a survey of Stefania's legacy in research and a homage by her thesis supervisor, these seven sections are ordered according to Stefania's life cycle in research, from software engineering to formal methods and tools, and back: Software Engineering; Formal Methods and Tools; Requirements Engineering; Natural Language Processing; Software Product Lines; Formal

Verification; and Applications. *Monthly Catalogue, United States Public Documents* A Report on NASA Software Engineering and Ada Training RequirementsSeven Processes That Enable Nasa Software Engineering Technologies The Software Engineering Laboratory (SEL) was established in 1976 for the purpose of studying and measuring software processes with the intent of identifying improvements that could be applied to the production of ground support software within the Flight Dynamics Division (FDD) at the National Aeronautics and Space Administration (NASA)/Goddard Space Flight Center (GSFC). The SEL has three member organizations: NASA/GSFC, the University of Maryland, and Computer Sciences Corporation (CSC). The concept of process improvement within the SEL focuses on the continual understanding of both process and product as well as goal-driven experimentation and analysis of process change within a production environment. Mcgarry, Frank and Pajerski, Rose and Page, Gerald and Waligora, Sharon and Basili, Victor and Zelkowitz, Marvin Goddard Space Flight Center...

Engineering and Managing Software Requirements AIAA This book constitutes the refereed proceedings of the Fifth International Symposium on Search-Based Software Engineering, SSBSE 2013, held in St.

Petersburg, Russia. The 14 revised full papers, 6 revised short papers, and 6 papers of the graduate track presented together with 2 keynotes, 2 challenge track papers and 1 tutorial paper were carefully reviewed and selected from 50 initial submissions. Search Based Software Engineering (SBSE) studies the application of meta-heuristic optimization techniques to various software engineering problems, ranging from requirements engineering to software testing and maintenance.

NASA SP-7500

World Scientific

Learn how to attract and keep successful software professionals Software Engineering Quality Practices describes how software engineers and the managers that supervise them can develop quality software in an effective, efficient, and professional manner. This volume conveys practical advice quickly and clearly while avoiding the dogma that surrounds the software profession. It concentrates on what the real requirements of a system are, what constitutes an appropriate solution, and how you can ensure that the realized solution fulfills the desired qualities of relevant stakeholders. The book also discusses how successful organizations attract and keep people who are capable of building high-quality systems. The author succinctly describes the nature and fundamental principles of design and incorporates them into an architectural framework, enabling you to apply the framework to the development of quality software for most applications. The text also analyzes engineering requirements, identifies poor requirements, and demonstrates how bad requirements can be transformed via several important quality practices.

NASA Systems Engineering Handbook IEEE Computer Society Press

Tutorial notes are presented from four tutorials at a December 2002

workshop. Material is in the form of boxed text and graphics taken directly from slides. A tutorial on how to make software compliant to Section 508 of the Workforce Improvement Act discusses both specific regulations and more gener

NASA's Fiscal Year 2006 Budget Proposal

Institute of Electrical & Electronics Engineers(IEEE)

This text contains the tutorial notes from the 2005 NASA Software Engineering Workshop. This volume contains five tutorials that are oriented to practitioners in the area of real-time software development. "Software Development for Safety-Critical Applications: Fundamental Concepts, Design Principles and Real-Time Programming," presented by Andrew J. Kornecki and Janusz Zalewski, looks at the lessons learned about pitfalls of real-time software development and will include view on the current state of practice in real-time safety critical software based on the instructors' experience with software products in aviation, nuclear, and medical industries. "Case Studies for Software Engineers," presented by Dewayne E. Perry, teaches the correct use and interpretation of case studies. "Designing Software Product Lines with UML: From Use Cases to Pattern-Based Software Architectures," presented by Dr. Hassan Gomaa, addresses how to develop object-oriented requirements, analysis, and design models of software product lines using the Unified Modeling Language (UML) 2.0 notation. "Decision Support for Software Release Planning Methods, Tools, and Practical Experience," presented by Guenther Ruhe, provides guidelines for release plans and lessons learned in performing RP. "Architecture on Demand for any Domain Using Stable Software Patterns," presented by Dr. Mohamed E. Fayad, focuses on how software stability concepts are used to develop on-demand architectures.

NASA Software

Documentation Standard Springer This book constitutes the refereed proceedings of the 22nd International Conference on Computer Safety, Reliability and Security, SAFECOMP 2003, held in Edinburgh, UK in September 2003. The 30 revised full papers presented together with two keynote talk abstracts were carefully reviewed and selected from 96 submissions. The papers are organized in topical sections on formal methods, design for dependability, security and formal methods, dependability and performance analysis, dependability of medical systems, fault tolerance, tools for dependable design, dependability of critical infrastructures, hazard and safety analysis, and design for dependability. NASA software engineering benchmarking study CRC Press Advanced space exploration is performed by unmanned missions with integrated autonomy in both flight and ground systems. Risk and feasibility are major factors supporting the use of unmanned craft and the use of automation and robotic technologies where possible. Autonomy in space helps to increase the amount of science data returned from missions, perform new science, and reduce mission costs. Elicitation and expression of autonomy requirements is one of the most significant challenges the autonomous spacecraft engineers need to overcome

today. This book discusses the Autonomy Requirements Engineering (ARE) approach, intended to help software engineers properly elicit, express, verify, and validate autonomy requirements. Moreover, a comprehensive state-of-the-art of software engineering for aerospace is presented to outline the problems handled by ARE along with a proof-of-concept case study on the ESA's BepiColombo Mission demonstrating the ARE ' s ability to handle autonomy requirements.

From Software Engineering to Formal Methods and Tools, and Back IEEE

This book contains a collection of thoroughly refereed papers presented at the 5th International Conference on Evaluation of Novel Approaches to Software Engineering, ENASE 2010, held in Athens, Greece, in July 2010. The 19 revised and extended full papers were carefully selected from 70 submissions. They cover a wide range of topics, such as quality and metrics; service and Web engineering; process engineering; patterns, reuse and open source; process improvement; aspect-oriented engineering; and requirements engineering.

Springer Science & Business Media

This slide presentation reviews seven processes that NASA uses to ensure that software is developed, acquired and maintained as specified in the NPR 7150.2A requirement. The requirement is to ensure that all software be appraised for the Capability Maturity Model Integration (CMMI). The enumerated processes are: (7) Product Integration, (6) Configuration Management, (5) Verification, (4) Software Assurance, (3) Measurement and Analysis, (2)

Requirements Management and (1) Planning & Monitoring. Each of these is described and the group(s) that are responsible is described.

Handbook of Software Engineering and Knowledge Engineering

Springer Nature

Now in its third edition, this classic guide to software requirements engineering has been fully updated with new topics, examples, and guidance. Two leaders in the requirements community have teamed up to deliver a contemporary set of practices covering the full range of requirements development and management activities on software projects. Describes practical, effective, field-tested techniques for managing the requirements engineering process from end to end. Provides examples demonstrating how requirements "good practices" can lead to fewer change requests, higher customer satisfaction, and lower development costs. Fully updated with contemporary examples and many new practices and techniques. Describes how to apply effective requirements practices to agile projects and numerous other special project situations. Targeted to business analysts, developers, project managers, and other software project stakeholders who have a general understanding of the software development process. Shares the insights gleaned from the authors ' extensive experience delivering hundreds of software-requirements training courses, presentations, and webinars. New chapters are included on specifying data requirements, writing high-quality functional requirements, and requirements reuse.

Considerable depth has been added on business requirements, elicitation techniques, and nonfunctional requirements. In addition, new chapters recommend effective requirements practices for various special project situations, including enhancement and replacement, packaged solutions, outsourced, business process automation, analytics and reporting, and embedded and other real-time systems projects.

NASA Software Documentation Standard Pearson Education

The workshop aims to bring together NASA technical staff, contractors, academics and industrial practitioners interested in the advancement of software engineering principles and techniques. The workshop provides a forum for reporting on past experiences for describing new and emerging results and techniques, and for exchanging ideas on best practice and future directions. Of particular importance is relevance to NASA's mission and goals, and how techniques might be applied, or adapted for use, at NASA, or how NASA's techniques might be used or adapted for more generic use. This SEW 2005 proceedings includes revised versions of peer-reviewed papers covering topics such as metrics and experience reports, software quality assurance, formal methods and formal approaches to software development, software engineering processes and process improvement, CMM and CMMI, requirements engineering, software Architectures, real-time Software Engineering, software maintenance, reuse, and legacy systems, and agent-based software systems.

Computer Safety, Reliability, and Security Independently Published

As requirements engineering continues to be recognized as the key to on-time and on-budget delivery of software and

systems projects, many engineering programs have made requirements engineering mandatory in their curriculum. In addition, the wealth of new software tools that have recently emerged is empowering practicing engineers to improve their

Space Station : NASA's Software Development Approach Increases Safety and Cost Risks

Springer

Lists citations with abstracts for aerospace related reports obtained from world wide sources and announces documents that have recently been entered into the NASA Scientific and Technical Information Database.