

## Conceptual Design And Analysis Of High Pressure Ball Valve

This study addresses the feasibility of using electronic imaging technology for aeroballistics research. Electronic imaging devices are analyzed with respect to range system characteristics. Optical imaging and illumination parameters in the existing system are defined and quantified. System imaging capability is measured and described by modern imaging systems analysis in terms of the system response to a step function input. Two independent measurements that determine system illumination are described and supporting analysis is included. Concepts critical to data analysis are discussed, along with a survey of available hardware that will image and process projectile flight path data. Recommendations pertinent to the selection of hardware and the overall system organization and maintenance are made.

Flexure mechanisms are the central part of precision instruments and devices for numerous science and engineering applications. Currently, design of flexure mechanisms often heavily relies on finite element modeling. However the modeling complexity and low computational efficiency make it not suitable for the early design stage when many concepts need to be evaluated in a short period of time. To reduce the overhead in the conceptual design stage,a multi-segment energy minimization framework that integrates linear elastic theory for kinetostatic analysis of spatial flexure mechanisms is presented in this work. Compliance matrices for commonly used flexure elements are presented and their accuracy was studied and verified in details. While deformation of each individual segment depends on the linear elastic theory, the multi-segment model allows accurate calculation of large deformations with a high computational efficiency. To facilitate modeling of spatial flexure mechanisms, a rich Graphical User Interface (DAS3D) in MATLAB environment is implemented. The proposed framework and software tool are tested with spatial mechanisms in which nonlinear kinematic constraints and combined loading are present. The examples showed that the proposed multi-segment framework can accurately capture large kinematic motion under complex loading.

Conceptual Design and Analysis of a Robot Ammunition Loader

Conceptual Design and Systems Analysis of Photovoltaic Systems Final Report

A Conceptual Design Analysis of Git

Conceptual Design and Analysis of a Dynamic Scale Model of the Space Station Freedom

Conceptual Design and Analysis of a Rocket-propelled Boost-lift Stand-off Missile

*Although the overall appearance of modern airliners has not changed a lot since the introduction of jetliners in the 1950s, their safety, efficiency and environmental friendliness have improved considerably. Main contributors to this have been gas turbine engine technology, advanced materials, computational aerodynamics, advanced structural analysis and on-board systems. Since aircraft design became a highly multidisciplinary activity, the development of multidisciplinary optimization (MDO) has become a popular new discipline. Despite this, the application of MDO during the conceptual design phase is not yet widespread. Advanced Aircraft Design: Conceptual Design, Analysis and Optimization of Subsonic Civil Airplanes presents a quasi-analytical optimization approach based on a concise set of sizing equations. Objectives are aerodynamic efficiency, mission fuel, empty weight and maximum takeoff weight. Independent design variables studied include design cruise altitude, wing area and span and thrust or power loading. Principal features of integrated concepts such as the blended wing and body and highly non-planar wings are also covered. The quasi-analytical approach enables designers to compare the results of high-fidelity MDO optimization with lower-fidelity methods which need far less computational effort. Another advantage to this approach is that it can provide answers to "what if" questions rapidly and with little computational cost. Key features: Presents a new fundamental vision on conceptual airplane design optimization Provides an overview of advanced technologies for propulsion and reducing aerodynamic drag Offers insight into the derivation of design sensitivity information Emphasizes design based on first principles Considers pros and cons of innovative configurations Reconsiders optimum cruise performance at transonic Mach numbers Advanced Aircraft Design: Conceptual Design, Analysis and Optimization of Subsonic Civil Airplanes advances understanding of the initial optimization of civil airplanes and is a must-have reference for aerospace engineering students, applied researchers, aircraft design engineers and analysts. Conventional robotic actuators which motive power for manipulators have been commonly limited to three basic types: electric, pneumatic and hydraulic. Each type has advantages and limitations which have dictated their respective suitability for specific applications. However, new manipulator functions may require such qualities as stiffness, high speed, low weight, low inertia, high power output, reversibility, and accurate positioning, which are not usually mutually compatible within an actuator type. With the increased use of robots in industry and the military, new robot-specific actuators will be developed to better meet functional requirements. One concept to be considered is a stiff pneumatic-hydraulic actuator for mobile anthropomorphic robot application. This paper explores the conceptual design feasibility of such an actuator system, and presents a first order system analysis of key parts.*

Propellant Management Device Conceptual Design and Analysis

V3 Appendix G

Bridge Design

Conceptual Design Analysis of a Sea Floor Habitat

Theory and Application of Parameter Analysis

Although first published nearly thirty years ago, this book remains up-to-date, intellectually stimulating and realistic. Unlike most texts in the field, it relates design closely to the science and mathematics that are students' chief concern, and shows their relevance. It shows how to make simple but illuminating calculations, and how to achieve the insight and the invention that often result from them. Covering design principles in depth, this is, and remains, an original book: although some of the ideas which were novel in 1971 are now widely accepted, others remain new.

It is commonly asserted that the success of a software development project, and the usability of the final product, depend on the quality of the concepts that underlie its design. Yet this hypothesis has not been systematically explored by researchers, and conceptual design has not played the central role in the research and teaching of software engineering that one might expect. As part of a new research project to explore conceptual design, we are engaging in a series of case studies. This thesis reports on our case study on Git, a popular-yet sometimes puzzling-version control system. In an attempt to understand the root causes of its complexity, we analyze its conceptual model and identify some undesirable properties; we then present a reworking of the conceptual model that forms the basis of Gitless, our redesign of Git.

Advanced Aircraft Design

Tools for the Conceptual Design and Engineering Analysis of Micro Air Vehicles

ANALYSIS OF CONCEPTUAL DESIGN OF A COMBINED POWER

Conceptual Design and Analysis of a WEB Handling System for a Large Scale Inkjet Printer for the Textile Industry

Traps and Troughs

A horizon detection logic, based on a ratio-of-integrated-radiance concept, which detects the earth's horizon at a relatively stable height under all geographic and meteorological conditions was evaluated by computer simulation on a body of synthesized radiance profiles. An error-sensitivity analysis of the concept was performed, and optimum design parameter values for a sensor were determined. A conceptual design for an improved 15 micron sensor based on this analysis is discussed.

This presentation will give information on Multi-Disciplinary Analysis and Technology Development, including it's objectives and how they will be met. In addition, it will also present recent highlights including the Lift-Offset Civil Design and it's study conclusions, as well as, the LCTR2 Propulsion Concept's study conclusions. Recent publications and future publications will also be discussed.

Conceptual Design and Systems Analysis of Photovoltaic Power Systems. Final Report. Volume 4. Nontechnical Issues

Concept Design and Analysis of a Linear Intermodal Freight System

Non-deterministic Design and Analysis of Parameterized Optical Structures During Conceptual Design

Conceptual Design and Analysis of Reactive Distillation Processes for the Production of Isooctane Via Indirect Alkylation

Conceptual Design, Analysis and Optimization of Subsonic Civil Airplanes

**Conceptual design, along with need identification and analysis, make up the initial stage of the design process. Need analysis transforms the often vague statement of a design task into a set of design requirements. Conceptual design encompasses the generation of concepts and integration into system-level solutions, leading to a relatively detailed design. This 2001 book is devoted to the crucial initial stage of engineering design. In particular, it focuses on parameter analysis, a methodology that leads the user through the design process, helping to identify critical issues (parameters) of the design and propose configuration-specific solutions. To illustrate the principles discussed, the authors present numerous examples and a variety of real-world case studies. The emphasis throughout is on innovation. This useful text will appeal to advanced undergraduate and graduate students, as well as practising engineers, architects, and product development managers.**

Written for aeronautical designers and students, this guide explains the conceptual design synthesis process, laying out the procedure in logical steps. Focusing on the initial synthesis phase of the design, the book provides examples covering many classes of fixed-wing aircraft. Specific chapters address: the design process; aircraft configuration; flight regime and powerplant considerations; fuselage layout; configuration of the wing; basic lift, drag, and mass representations; performance estimation; parametric analysis and optimization; and, analysis of conceptual design. Addenda cover: landing gear considerations; longitudinal control and stability surfaces; lateral control and stability surfaces; mass predictions; and, examples of the synthesis procedure. Included is a disk of spreadsheets providing core data. Howe is an aviation consultant. Distributed in the US by ASME. Annotation copyrighted by Book News, Inc., Portland, OR

Topical Report, September 29, 1978-May 4, 1979

Conceptual Design and Analysis of an Infrared Horizon Sensor with Compensation for Atmospheric Variability

Conceptual Design for Engineers

Value Analysis of Conceptual Design Alternatives

Conceptual Design and Structural Analysis of the Spectroscopy of the Atmosphere Using Far Infrared Emission (SAFIRE) Instrument

*The next generation of space observatories will use larger mirrors while meeting tighter optical performance requirements than current space telescopes. The spacecraft designs must satisfy the drive for low-mass, low-cost systems, and be robust to uncertainty since design validation will be based on analysis instead of pre-launch tests. Analytical techniques will be required to identify which technologies or structural architectures are most appropriate to meet conflicting system requirements, but traditionally, model-based dynamic analysis would only take place after a single point design is chosen. The challenges facing future space telescopes require a new approach to conceptual design, and motivate the creation of design tools to identify superior, robust designs earlier in the design lifecycle using model-based analysis methods. A conceptual design methodology is proposed, in which both nominal performance as well as robustness to uncertainty are evaluated across multiple design realizations. A modeling environment is created so that for any set of design variables, such as mirror architecture or dimensions of the spacecraft, a finite element model is automatically generate and analyzed.*

*A comprehensive guide to bridge design Bridge Design - Concepts and Analysis provides a unique approach, combining the fundamentals of concept design and structural analysis of bridges in a single volume. The book discusses design solutions from the authors' practical experience and provides insights into conceptual design with concrete, steel or composite bridge solutions as alternatives. Key features: Principal design concepts and analysis are dealt with in a unified approach. Execution methods and evolution of the static scheme during construction are dealt with for steel, concrete and composite bridges. Aesthetics and environmental integration of bridges are considered as an issue for concept design. Bridge analysis, including modelling and detail design aspects, is discussed for different bridge typologies and structural materials. Specific design verification aspects are discussed on the basis of present design rules in Eurocodes. The book is an invaluable guide for postgraduate students studying bridge design, bridge designers and structural engineers.*

Conceptual Design and Analysis of a Compound Parabolic Concentrator Array

Aircraft Conceptual Design Synthesis

Furnace and Heat Recovery Area Design and Analysis for Conceptual Design of Oxygen-Based PC Boiler

Progress in Conceptual Design and Analysis of Advanced Rotorcraft

Vanes

Conceptual designs and associated technologies for deployment 100 m class radiometer antennas were developed. An electrostatically suspended and controlled membrane mirror and the supporting structure are discussed. The integrated spacecraft including STS cargo bay stowage and development were analyzed. An antenna performance evaluation was performed as a measure of the quality of the membrane/spacecraft when used as a radiometer in the 1 GHz to 5 GHz region. Several related LSS structural dynamic models differing by their stiffness property (and therefore, lowest modal frequencies) are reported. Control system whose complexity varies inversely with increasing modal frequency regimes are also reported. Interactive computer-aided-design software is discussed.

Aircraft Conceptual Design Synthesis means design by fitness-for-purpose. Design engineers can jump off from the point of given parameters and requirements - required performance, payloads and other factors. This is the first book for the aeronautical designer devoted to guiding the reader through this highly effective conceptual design synthesis process. This forms the procedure for the initial stage of the aircraft design process - the interpretation of a requirement into the preliminary layout. A logical design sequence is developed utilizing original modules to represent propulsion, lift, drag, mass, and performance. "Aircraft Conceptual Design Synthesis" includes a disk of spreadsheets that provides core data. Unlike existing approaches, the design synthesis method can be applied to novel aircraft concepts. CONTENTS INCLUDE The design process Aircraft configuration Flight regime and powerplant considerations Fuselage layout Configuration of the wing Basic lift, drag and mass representations Performance estimation Parametric analysis and optimisation Analysis of concept design "This is an important landmark book and in my view will become a standard by which others will be compared"---Dr E C P Ransom, Kingston University, UK.

Safety Analysis in Conceptual Design of Process Control

Conceptual Design and Analysis of a Solid Breeder Thermomechanics Simulation Experiment, UNICEX

Conceptual Design and Analysis of a Novel Actuator

Final Report

Conceptual Design and Analysis of a Special Operations Transport

This report documents the conceptual design study performed to evaluate design options for a subscale dynamic test model which could be used to investigate the expected on-orbit structural dynamic characteristics of the Space Station Freedom early build configurations. The baseline option was a 'near-replica' model of the SSF SC-7 pre-integrated truss configuration. The approach used to develop conceptual design options involved three sets of studies: evaluation of the full-scale design and analysis databases, conducting scale factor trade studies, and performing design sensitivity studies. The scale factor trade study was conducted to develop a fundamental understanding of the key scaling parameters that drive design, performance and cost of a SSF dynamic scale model. Four scale model options were estimated: 1/4, 1/5, 1/7, and 1/10 scale. Prototype hardware was fabricated to assess producibility issues. Based on the results of the study, a 1/4-scale size is recommended based on the increased model fidelity associated with a larger scale factor. A design sensitivity study was performed to identify critical hardware component properties that drive dynamic performance. A total of 118 component properties were identified which require high-fidelity replication. Lower fidelity dynamic similarity scaling can be used for non-critical components. Davis, D. A. and Gronet, M. J. and Tan, M. K. and Thorne, J. Unspecified Center DESIGN ANALYSIS; DYNAMIC CHARACTERISTICS; DYNAMIC MODELS; SCALE MODELS; SPACE STATION FREEDOM; SPACECRAFT DESIGN; DYNAMIC TESTS; SPACECRAFT CONFIGURATIONS; TRUSSES...

Sponges

Rapid Conceptual Design and Analysis of Planar and Spatial Compliant Mechanisms

Conceptual Design and Analysis of a Large Antenna Utilizing Electrostatic Membrane Management

The State of Illinois Center at Chicago

Second Editon Graphics