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20030001492 Research and Technology Organization, Modelling and Simulation Group, Neuilly-sur-Seine, France
Future Modelling and Simulation Challenges ***Defis Futurs pour la Modelisation et la Simulation***
Future Modeling and Simulation Challenges; November 2002, 314p; In English; In French, 12-14 Nov. 2001, Breda, Netherlands; See also 20030001493 through 20030001516; CD-ROM contains full text document in PDF and PowerPoint formats; Original contains color illustrations
Report No.(s): RTO-MP-073; AC/323(NMSG-010)TP/02; ISBN 92-837-0025-2; No Copyright; Avail: CASI; C01, CD-ROM; A14, Hardcopy; A03, Microfiche

The 3rd NATO Modelling and Simulation (M&S) Conference was organized by the NMSG and hosted by The Netherlands, at the Royal Netherlands Military Academy in Breda (12 to 14 November 2001). The specific topics were as follows: 1) Future trends and limits in M&S: Gaming Industry and NATO needs and Incorporating the human element into M&S; 2) M&S best practice and policy: Standards and architecture and Integration of M&S systems to C3I systems, Verification, Validation and Accreditation (VV&A) of M&S systems; and 3) Support to Operations, Exercising and Training: Decision Support, Campaign Planning and Mission Rehearsal.
Derived from text
Conferences; Computerized Simulation; Mathematical Models; Architecture (Computers); Artificial Intelligence; Game Theory

20030004241 Research and Technology Organization, Human Factors and Medicine Panel, Neuilly-sur-Seine, France
Sleep/Wakefulness Management in Continuous/Sustained Operations ***La Gestion des Rythmes Veille/Sommeil Lors des Operations Continues/Soutenues***
Sleep/Wakefulness Management in Continuous/Sustained Operations; November 2002, 146p; In English; In French, 17-18 Jun. 2002, Fort Rucker, AL, USA; Sleep/Wakefulness Management in Continuous/Sustained Operations; Sleep/Wakefulness Management in Continuous/Sustained Operations, 24-25 Jun. 2002, Warsaw, Poland; Sleep/Wakefulness Management in Continuous/Sustained Operations; Sleep/Wakefulness Management in Continuous/Sustained Operations, 27-28 Jun. 2002, Paris, France; See also 20030004242 through 20030004251; Original contains color illustrations; CD-ROM contains full text document in PDF format
Report No.(s): RTO-EN-016; AC/323(HFM-064)TP/39; ISBN 92-837-1073-8; No Copyright; Avail: CASI; C01, CD-ROM; A02, Microfiche; A07, Hardcopy

To preserve a good level of vigilance and performance, we have to respect our sleep-wakefulness cycle. The sustained and continuous operations induce disturbances of this biological rhythm, such as sleep loss, jet-lag. There is an antinomy between the physiological requirement and the operational requirement. To be able to continue the mission but also to preserve our security and the security of the crew we need an appropriate sleep-wakefulness management. This Lecture

Series presents the physiological, ergonomic and pharmacological possibilities to reach these goals.
Author
Sleep; Wakefulness; Human Factors Engineering; Pharmacology; Circadian Rhythms; Military Operations

20030018916 Research and Technology Organization, Sensors and Electronics Technology Panel, Neuilly-sur-Seine, France
Experimental Assessment Parameters and Procedures for Characterisation of Advanced Thermal Imagers ***Final Report Parametres et Procedures d'Evaluation Experimentale pour la Caracterisation d'Imageurs Thermiques Avances***
February 2003, 60p; In English; Original contains color illustrations; CD-ROM contains full text document in PDF format
Report No.(s): RTO-TR-075(II); AC/323(SET-015)TP/21; ISBN 92-837-1095-9; Copyright; Avail: CASI; C01, CD-ROM; A04, Hardcopy; A01, Microfiche; Distribution within the U.S. granted by agreement

The objective of this study was the development and investigation of experimental assessment parameters and measurement techniques required for characterizing advanced staring of micro-scanned thermal imagers. The task group member nations developed and investigated a number of measures and measurement techniques to characterize advanced thermal imagers. They are presented in this report. These measures and techniques allow assessment of basic, system-relevant sensor parameters, such as spatial resolution and noise, as well as overall sensor performance.
Author
Assessments; Independent Variables; thermography; Sampling; Sensitivity; Imaging Techniques

20030018920 Research and Technology Organization, Systems Concepts and Integration Panel, Neuilly-sur-Seine, France
Helicopter/Ship Qualification Testing, Volume 22 ***Les Essais de Qualification Helicoptere/Navire, Volume 22***
Carico, G. D., Naval Air Systems Command, USA; Fang, R., National Aerospace Lab., Netherlands; Finch, R. S., QinetiQ Ltd., UK; Geyer, W. P., Jr., Naval Air Systems Command, USA; Krijns, H. W., Royal Netherlands Navy, Netherlands; Long, K., Naval Air Systems Command, USA; February 2003, 126p; In English; Original contains color illustrations; CD-ROM cotains full text document in PDF format
Report No.(s): RTO-AG-300-Vol-22; AC/323(SCI-038)TP/53-Vol-22; ISBN 92-837-1093-2; Copyright; Avail: CASI; C01, CD-ROM; A07, Hardcopy; A02, Microfiche; Distribution within the U.S. granted by agreement

The purpose of this AGARDograph is to document the preparation, execution, and data analysis of helicopter/ship flight-testing. The attention is focused on helicopter take-off and landing which constitutes the main part of the test programme. Described are: The factors influencing the helicopter/ship operations; How these factors are determined in various qualification programme elements; How these factors are used to set up a flight test programme on board the ship; How the ship-borne flight tests, within the constraints of safety and efficiency, are carried out; In what way, during the tests, repeated use is made of the data obtained in the previous qualification programme elements and of the experience of the test team, resulting in the smallest possible number of flying hours without affecting the quality of the results. A brief outline of helicopter-ship qualification programmes as carried out by the Netherlands National Aerospace Laboratory (NLR), by QinetiQ (formerly the UK Defence Evaluation & Research Agency (DERA) at Boscombe Down in the UK and by the US Naval Air Warfare Center Aircraft Division (NAWCAD) at Patuxent River is given. It describes how detailed information of the helicopter capabilities, ship's motion characteristics and the wind-climate above the ship's flight deck, is used to set up and to execute a safe and efficient flight test programme. The programme leads to a safe and maximum operational availability of the helicopter on board the ship in terms of take-off and landing capabilities as a function of relative wind and sea-state.
Author
Military Helicopters; Flight Tests; Ships; Performance Tests; Navy

20030018921 Research and Technology Organization, Human Factors and Medicine Panel, Neuilly-sur-Seine, France
Virtual Reality: State of Military Research and Applications in Member Countries ***La Realite Virtuelle: L'Etat Actuel des Travaux de Recherche et des Applications Militaires dans les Pays Membres de l'Alliance***
February 2003, 154p; In English; Original contains color illustrations; CD-ROM contains full text document in PDF format
Report No.(s): RTO-TR-018; AC/323(HFM-021)TP/18; ISBN 92-837-0030-9; Copyright; Avail: CASI; C01, CD-ROM; A08, Hardcopy; A02, Microfiche; Distribution within the U.S. granted by agreement

Research Study Group 28 (RSG 28) has defined Virtual reality as the experience of being in a synthetic environment and the perceiving and interacting through sensors and effectors, actively and passively, with it and the objects in it, as they were real. VR technology allows the user to perceive and experience sensory contact and interact dynamically with such contact in any or all modalities. The main goals were: to identify human factors issues involved in the use of VR technology for military purposes; to determine the state of knowledge with regard to those issues and to recommend a research agenda that will address critical questions and enable effective products to be produced to meet the military's needs. In its five year existence RSG 28 has organized three major workshops addressing these goals and published the results in a number of reports, which are part of this document.
Author
Military Technology; Research and Development; Virtual Reality

20030019078 Research and Technology Organization, Human Factors and Medicine Panel, Neuilly-sur-Seine, France
Spatial Disorientation in Military Vehicles: Causes, Consequences and Cures ***Desorientation Spatiale dans les Vehicules Militaires: Causes, Consequences et Remedes***
Spatial Disorientation in Military Vehicles: Causes, Consequences and Cures; February 2003, 488p; In English; In French, 15-17 Apr. 2002, La Coruna, Spain; See also 20030019079 through 20030019124; CD-ROM contains full text document in PDF format; Original contains color illustrations
Report No.(s): RTO-MP-086; AC/323(HFM-085)TP/42; ISBN 92-837-0028-7; Copyright; Avail: CASI; C01, CD-ROM; A21, Hardcopy; A04, Microfiche; Distribution within the U.S. granted by agreement

Spatial disorientation (SD), a condition in which the operator fails to sense correctly the position, motion or attitude of the vehicle or of him/herself, continues to be a cause of aircraft accidents, with accident rates that, unlike the overall rate, have not fallen over the past 15 years. The Symposium was convened to review current knowledge of the causes of SD and preventative measures, applicable to air, land and maritime environments. Thirty two oral and 14 poster presentations covered the following topics: Causal mechanisms; Operational and psychophysiological consequences of SD; Incidence of SD in air, land and maritime environments; SD training programmes and training devices; Cognitive and sensory aids for the maintenance of spatial orientation, with an emphasis on the use of tactile cues.
Author
Disorientation; Situational Awareness; Military Vehicles; Conferences; Pilot Performance; Pilots; Physiological Effects; Pilot Training

20030019125 Research and Technology Organization, Applied Vehicle Technology Panel, Neuilly-sur-Seine, France
Aging Mechanisms and Control: Specialists' Meeting on Life Management Techniques for Aging Air Vehicles ***Les Mecanismes Vieillissants et le Controle: Reunions des Specialistes des Techniques de Gestion du Cycle de Vie pour Vehicules Aeriens Vieillissants***
February 2003, 416p; In English, 8-11 Oct. 2001, Manchester, UK; See also 20030019126 through 20030019159; Original contains color illustrations; CD-ROM contains full text document in PDF format for text and PowerPoint format for slides
Report No.(s): RTO-MP-079(II); AC/323(AVT-085)TP/50; ISBN 92-837-1089-4; Copyright; Avail: CASI; C01, CD-ROM; A18, Hardcopy; A04, Microfiche; Distribution within the U.S. granted by agreement

The costs of maintaining ageing aircraft are draining the existing budgets. The Specialist Meeting provided guidance on strategies for the development and implementation of technologies and logistic management processes to reduce this economic burden. The emphasis was on military aircraft, but many of the principles could be applied to other defence systems. The papers covered the entire range of ageing problems including structural integrity, corrosion, avionics, mechanical subsystems, structures and wiring as well as the role of information management. Forty-two papers addressed the safety and economic implications such as fatigue cracking, corrosion, wear and material degradation. Key technologies were discussed, including non-destructive inspection, repair, modifications, prevention analysis, and health management. The shortcomings of current were highlighted and the investment required was identified. The need for research and development was clearly identified.
Author
Avionics; Aging (Materials); Degradation; Life (Durability); Mechanical Properties; Materials Science; Autonomy

20030020397 Research and Technology Organization, Applied Vehicle Technology Panel, Neuilly-sur-Seine, France
Ageing Mechanisms and Control Symposium, Part A, Developments in Computational Aero- and Hydro-Acoustics Symposium, Monitoring and Management of Gas Turbine Fleets for Extended Life and Reduced Costs ***Les Mecanismes Vieillissants et le Controle, Partie A, Partie B, Developpements dans le Domaine de l'Aeroacoustique et l'Hydroacoustique Numeriques, Le Suivi et la Gestion des Turbomoteurs en vue du Prolongement de Leur Duree de Vie de la Diminution des Couts***
February 2003, 364p; In English; In French, 8-11 Oct. 2001, Manchester, UK; See also 20030020398 through 20030020447; Original contains color illustrations; CD-ROM contains full text document in PDF format for text and PowerPoint format for slides
Report No.(s): RTO-MP-079(I)-Pt-A-B; AC/323(AVT-074/075)TP/50-Pt-A-B; ISBN 92-837-0024-4; Copyright; Avail: CASI; C01, CD-ROM; A16, Hardcopy; A03, Microfiche; Distribution within the U.S. granted by agreement

Part A: The acoustic characteristics of air and sea vehicles are of increasing importance for war-time as well as peace-time operations. The meeting treated the potential of and results obtained with computational aero- and hydro-acoustics. It is a relatively new and rapidly expanding technical discipline with a large potential for (more) accurate prediction of the acoustic characteristics of air and sea vehicles. Examples are: Acoustic signatures. Acoustic fatigue loads and their consequences for the structural integrity. Effects of inboard noise levels and the near-field acoustic environment including low frequency noise on the effective and efficient operation of the vehicle and its systems (human factors). Community noise of air vehicles during peace-time operation. Papers were presented on the following topics. Propulsion & power noise: propellers, fans, jets, power systems. Fluid flow noise: shear layers and vortex shedding/interaction, cavities. Noise propagation. Structural response and acoustic loads suppression. Part B: Financial constraints make it imperative to retain weapon systems for longer periods than originally planned and to operate them in ways not envisioned by the designers. Therefore technologies that extend the useful lives of weapon systems and their components are needed. Twenty four papers from seven NATO nations and one allied nation (Australia) were presented threating the Monitoring and Management of Gas Turbine Fleets for Extended Life and Reduced Costs. Papers were presented in four major categories: Maintenance and logistics practices, General design practices, Usage data and mission analysis, and Life determination methodologies. These categories provided material of interest to, respectively, the fleet manager, the equipment designer, the fleet operators, and the technical specialists responsible for fundamental technologies. A consensus view emerged that full fleet monitoring is optimal for understanding fleet life. Further, limitations in existing data bases with regard to both content and ability to support appropriate data manipulation were identified as a significant concern. There is need for more research into the failure mechanisms such as crack growth in order to identify and safely use the remaining life in fielded systems. This originated from the work of the former AGARD/PEP WG28.
Author

Acoustic Fatigue; Acoustic Properties; Aging (Metallurgy); Computation; Fatigue (Materials); Gas Turbines; Human Factors Engineering