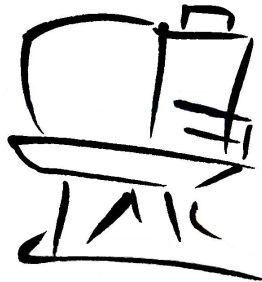


2017 FSEMC — Presentations

- Viral Risk on FSTD Software—Real Case Presentation
- The Apparent Vertical Filter—A Novel Motion Drive Filter Concept
- Flight Simulator Data Collection Program in China
- FAA Part 60 Change 2 Directive 2—Reality and Challenges
- Providing Effective Enhanced Flight Vision Systems (EFVS) Simulation for Level D Training Devices
- Interfacing with Reality: Possibilities and Pitfalls
- Factors Influencing the Design of Future Aircraft Manufacturer Simulation Software Packages
- Designing for Improved Helicopter Simulation



2017 FSEMC — Plan Now!
September 18-21
Memphis, Tennessee



Viral Risk on FSTD Software—Real Case Presentation

Presenter: Laurent Combes
FSTD Quality and Compliance Monitoring Manager
Airbus S.A.S.

Biography

Laurent has worked for Airbus since 1998. In 2002, he moved to the flight simulation domain as a Simulation Engineer specializing in Aerodynamics modeling, FSTD Subjective Aspects and QTGs.

Since 2010, he has been the Quality and Compliance Manager and regulatory SME for Airbus FSTDs.



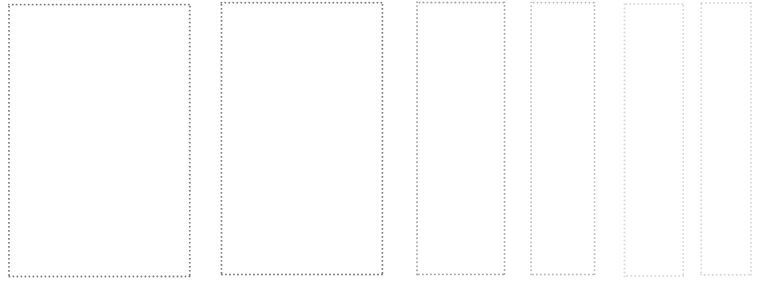
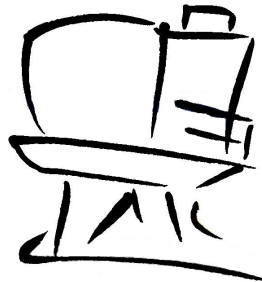
Abstract

Viral Risk on FSTD Software - Real case presentation

Through a real event, we will see how FSTD Simulation Software can be infected by a Virus, what the consequences are and how it has been managed in the frame of the FSTD Operations and Risk Management.

Summary

- Real Event description
- Consequences
- Analysis
- Corrective actions
- Risk reduction
- Integration in the SMS



The Apparent Vertical Filter — A Novel Motion Drive Filter

Presenter:

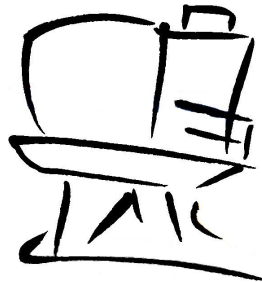
**Carsten Seehof, Dipl. -Ing
German Aerospace Center (DLR)**



Biography

Carsten Seehof did his degree in mechanical engineering in 1998 at the Technical University of Braunschweig. He began his professional career by working for 6 years for Simtec Simulation Technology GmbH, a manufacturer of Stewart platforms for research and development tasks as well as the technical manager of a Dornier DO228 Full Flight Simulator.

After that he worked for the Luftfahrt-Bundesamt (German CAA) for three years and finally went to the German Aerospace Center (DLR) in 2007. Since then he was responsible for building up the motion system and cabin structure for the simulation center at the Institute of Flight Systems in Braunschweig. His main area of research is motion simulation.



The Apparent Vertical Filter — A Novel Motion Drive Filter

Presenter:

**Carsten Seehof, Dipl. -Ing
German Aerospace Center (DLR)**



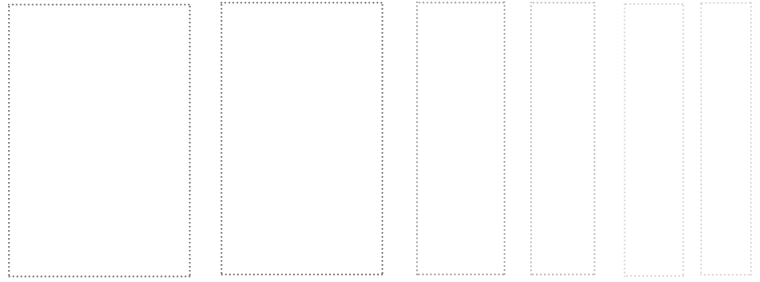
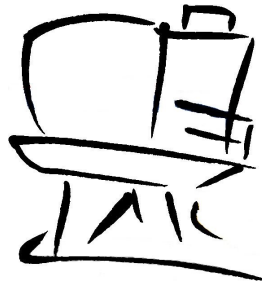
Abstract

In theory, certain aircraft maneuvers can be represented by simulators without any deviation from the real aircraft. For various reasons this is not possible for state-of-the-art motion drive cueing algorithms. This is where the latest DLR research activities in order to improve motion cueing began. For example a steady-heading sideslip maneuver could easily be provided by simply rolling the simulator cabin accordingly. The Apparent Vertical Filter (AVF) analyses the source of sensed forces by comparing them with the attitude of the aircraft. If for example the aircraft performs a sideslip maneuver a side force will be experienced by the pilot. Because this side force results from the roll angle, the algorithm will purely roll the simulator cabin in exactly the same way.

To sum it up, due to its composition the Apparent Vertical Filter (AVF) analyses the cause of a specific force with respect to a given flight attitude. For lateral maneuvers, it is therefore able to represent:

- a pure bank-angle the same way the aircraft does,
- a coordinated turn including the initialization phase with unnoticeable side forces, if there are any and
- a taxi turn with the same accuracy than other filters algorithms but customizable without affecting both maneuvers mentioned before.

For the corresponding longitudinal maneuvers the AVF provides equivalent results.



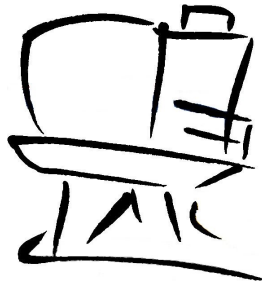
Flight Simulator Data Collection Program In China

Presenter: Li Gang, China Academy of Civil Aviation
Civil Aviation Administration of China

Abstract

In this topic, we present the data acquisition and processing technology in China for the flight simulator data package, which is the key stage for the development of the flight simulator data package. It is important to cooperate with the aircraft manufacturer, flight simulator manufacturer and the Civil Aviation Administration of China (CAAC) to develop the flight simulator data package.

The topic will be about flight simulator data collection program in China including Simulator Qualification Requirements, Certain Aircraft Specifics, Instrumentation (Data Acquisition System and Special Sensors & Equipment, Pilot Force Measurements- Measures Column/Wheel/Pedal Forces, List of Measured Parameters, Instrumentation Calibration, etc.), Flight Test Plan and Flight Test Report Review.



FAA Part 60 Change 2 and Directive 2

Presenter: **Jocelin Gagnon, CAE
Technical Authority**

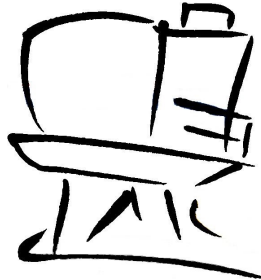


Biography

Jocelin Gagnon is the technical authority of the Installation & Delivery department which is responsible to deploy the simulators to our customer locations and support the associated qualification activities. Jocelin leads the Community of Practices required to Install, Integrate and Validate the simulators.

Jocelin's passion about aviation began very early when he completed his pilot license in 1991. He then landed his airplane in front of the door of the Aircraft Maintenance Engineer school. Passion always increasing, Jocelin's airplane landed at the University to graduate with a Mechanical Engineering degree. And the best way to live his passion was to integrate CAE as a Software developer in 1997. He held several key positions in the Verification & Validation domain within CAE.

Jocelin supported numerous simulator qualifications including airplanes and helicopters from FTD level 1 to FFS level D everywhere around the world. He had the opportunity to get qualification experiences with many authorities such EASA, FAA, Transport Canada, CAAC and JTSCB.



FAA Part 60 Change 2 and Directive 2

Presenter:

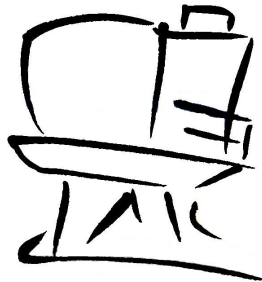
**Jocelin Gagnon, CAE
Technical Authority**



Abstract

The introduction of the Part 60 Change 2 (or Directive 2), setting new requirements for the Qualification of simulators, has driven many changes for almost all stakeholders in the industry including FAA inspectors, Airframers, Training Device Manufacturers (TDM), and Simulator Operators.

All these parties were involved in the review of the proposed rule in 2014 and agreed on the content. Now it is the time to put it in application and face the reality. It seems that the requirements are not understood the same way by everyone especially on how they should be validated and be trained on. The new requirements have now been used a few occurrences to qualify or upgrade new or older simulators. Feedback has been received from the customers and the Authorities and we believe it is a good time to share our understanding, experiences and challenges with the industry on these topics e.g. understanding of the regulatory requirements, dealing with the lack of data, the OEM pilot SME requirements, technology and hardware problems with older simulators, the use of the circular with other Authorities, etc.



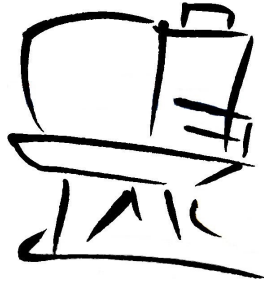
Providing Effective Enhanced Flight Vision Systems (EFVS) Simulation for Level D Devices

Presenter: TBD
Submitted by: Dennis Hartley, Rockwell Collins

A recent FAA final rule will allow pilots flying Enhanced Flight Vision Systems (EFVS) equipped aircraft to fly certain IFR approaches all the way to landing beginning March 2017.

This new ruling may result in an increased interest in equipping aircraft with EFVS and a corresponding increase in training needs in Level C/D Full Flight Simulators.

This paper will discuss the simulation of Enhanced Flight Vision Systems in Level D Full Flight Simulators.



Interfacing with Reality: Possibilities and Pitfalls

Presenters: Mike Jackson, FedEx
Dan Littmann, FlightSafety International

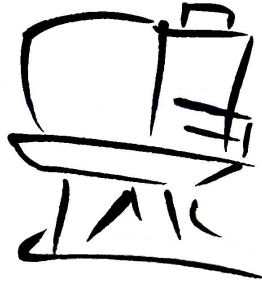
Submitted by: Josh Brooks, FlightSafety International

Modern flight simulations continue to raise expectations as technology enables ongoing advances in fidelity. Today there are very few tasks which cannot be trained in some sort of synthetic device. The question is no longer "Can this task be trained?"

As a result, crews are much more capable of using complex equipment right from the start. The challenges in real-world flight operations arise when the unexpected happens, and learning to successfully deal with those challenges is the ultimate objective of a great training program. Doing this requires replication of the real-world environment in the simulator to some degree.

As the environment found on modern flight decks keeps advancing, how does the simulated environment keep up with these changes? The questions then become "How much realism is enough?", and "Does it provide a benefit to flight training?"

This presentation will explore the leveraging of live data feeds to drive line-oriented simulator training. It will also discuss the issues involved with integrating a virtual entity and a non-virtual environment.

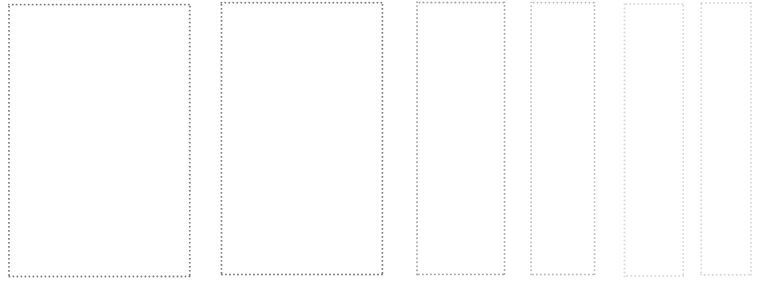
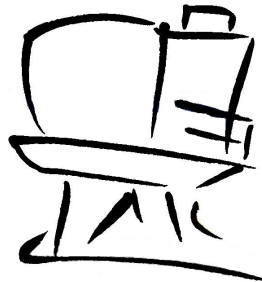


Factors Influencing the Design of Future Aircraft Manufacturer Simulation Software Packages

Presenter: TBD
Submitted by: Eric Fuilla-Weishaupt, Airbus

In recent years simulation software packages have become a standard way for aircraft manufacturers to supply models to the training device manufacturers. We are now well into the second decade of use of such packages.

This presentation describes the factors influencing the development of future software packages from an aircraft manufacturer perspective. With particular emphasis on the reduction of integration and validation times and meeting simulator update needs in the long-term, the intent is to propose ways the industry could optimise the life-time efficiency of training simulators.



Designing for Improved Helicopter Simulation

Presenter: TBD

Submitted by: Troy Fey, TRU Simulation and Training

Helicopter safety concerns continue to demand the attention of regulatory, safety and training organizations around the world. In fact, the safety record for helicopters is far from satisfactory and in particular, the number of accidents in "training" remains significantly large.

In particular, it was evident during the Rotary Wing IWG (International Working Group) meetings, and further supported by feedback received from helicopter training organizations, that many of the flight training devices were primarily used as procedures trainers and to meet regulatory requirements. By large, the performance and fidelity of these devices failed to meet the expectations of the Rotary Wing community in performance and for immersive mission training. As a result, much of the training still took place in the aircraft.

To address many of the needs and wishes of the Helicopter Training community, TRU undertook a "clean-sheet" design of a full flight simulator and focused on the areas of biggest concern and areas where gains could be achieved.

This presentation explores the possibilities and realities of improved helicopter flight simulation enabled by today's advanced visual, motion, and mission specific technologies.