

ATLAS Technical Coordination Expert System

Monday 9 July 2018 12:00 (15 minutes)

Technical details of the directly manipulated systems and the impact on non-obviously connected systems are required knowledge when preparing an intervention in a complex experiment like ATLAS. In order to improve the understanding of the parties involved in an intervention a rule-based expert system has been developed. On the one hand this helps to recognize dependencies that are not always evident and on the other hand it facilitates communication between experts with different backgrounds by translating domain specific vocabularies. To simulate an event this tool combines information from diverse areas such as detector control (DCS) and safety systems (DSS), gas, cooling, ventilation, and electricity distribution. The inference engine provides a fast response of the impacted systems that are connected at a low level although they belong to different domains. It also predicts the probability of failure for each of the components affected by an intervention. Risk assessment models considered are fault tree analysis and principal component analysis. The user interface is a web-based application that uses graphics and text to provide different views of the detector system adapted to the different user needs and to interpret the data.

Primary authors: ASENSI TORTAJADA, Ignacio (Univ. of Valencia and CSIC (ES)); KVESITADZE, Saba (Tbilisi State University (GE)); SALUKVADZE, George (Tbilisi State University (GE)); SOLANS SANCHEZ, Carlos (CERN); REEVES, Kendall (University of Texas at Dallas (US)); Dr RUMMLER, Andre (CERN)

Presenter: ASENSI TORTAJADA, Ignacio (Univ. of Valencia and CSIC (ES))

Session Classification: T5 - Software development

Track Classification: Track 5 –Software development