

# 3<sup>rd</sup> International Conference on Big Data Analysis & Data Mining

September 26-27, 2016 London, UK

## Simulation, modeling and diagnostics: From the health of spacecrafts to the health of astronauts

Jacopo Biancat, Chiara Brighenti and Attilio Brighenti

S A T E - Systems and Advanced Technologies Engineering Srl, Italy

The use of simulation and modeling allows gaining knowledge of the system under observation. This may help during the design phase of any systems, e.g. an industrial plant, because it allows a better understanding of the relationships among the several subsystems and processes involved or it may be used for diagnostics purposes, to automatically identify normal observations of a system (e.g. a spacecraft) and any possible new phenomenon and identify possible unknown relationships among subsystems or processes. Among the several possible approaches available in diagnostics, those based on data mining techniques are on the rise, because they allow the interpretation of large amounts of heterogeneous data using no or very little a priori knowledge, which saves resources and time. Given their generality, these methods may be tailored to a variety of sectors addressing different scopes. SATE successfully applied them, under contract with the European Space Agency, both in the space sector to telemetry data to monitor the health of satellites and to the medical sector to standard medical data, aiming at the improvement of astronaut medical autonomy during space missions. These works led to the development of two software prototype, KETTY (Knowledge Extraction Tool from Telemetry) and CLUE (Tool for Clinical Laboratory data Understanding and knowledge Extraction), tailored, to the analysis and extraction of knowledge, the former from telemetry data, and the latter from medical laboratory data.

### Biography

Jacopo Biancat has graduated in Control System Engineering from the University of Padua (2007). In 2007, he started working in the field of Industrial Automation. He joined S A T E in 2008 Leading the Research and Development group. In 2013, he moved to company Attain IT, undertaking the position of Innovation Manager, having experience in technical coordination of research projects, data analysis, knowledge extraction, system identification and diagnostics and software development. He has published 7 technical papers and has filed 14 patents.

[jacopo.biancat@sate-italy.com](mailto:jacopo.biancat@sate-italy.com)

Notes: