Aardvark Newsletter

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UPCOMING EVENTS

Big Crow International Conference

The Aardvark Roost's 3rd biennial International Conference will be held on the 4th and 5th September 2013 at the CSIR's International Convention Centre in Pretoria.

The theme is: ***Management of the Electromagnetic Spectrum (EMS) in the modern scenario of irregular warfare conducted in current operational environments.***

The preliminary program is available as an attachment to this newsletter, but is also available or on the Aardvark Roost's website, www.aardvarkaoc.co.za.

We are privileged to have R Adm (JG) K. Wiesner; Director Maritime Warfare as well as Dr Bob Andrews, AOC regional director, as keynote speakers. We have international participation as well as a briefing from the renowned defence analyst, H Romer-Heitman and many other knowledgeable presenters. For the first time, we have a session focusing on university and student participation as well.

To avoid disappointment, please register as soon as possible for this event.

HISTORY OF ELECTRONIC WARFARE IN SOUTH AFRICA

The Aardvark Roost is embarking on a challenging but exciting venture to capture the history of our industry with a collection of achievements, tragedies, humorous stories, and institute involvement, all supplemented by pictures.

We need a massive amount of support in the form of submissions and participation and subcommittee work. Please read the list of requirements to see how you can make a difference.

Structure:

The Board – will oversee the process, control the budget and make any necessary resolutions.

Dave Howie – is a board member and will oversee the creation of the necessary subcommittees. Contact him on dhowie@telkomsa.net to volunteer.

Main Editor – Structure and edit the publication.

Editing subcommittee – will assist the main editor with structuring the publication.

Photography subcommittee - will collect photographs and help identify contents, time period, individuals, and also improve quality if necessary.

Interview subcommittee – will collect written submissions and where necessary record verbal interviews. They will also be contactable for suggestions on themes.

Security and Ethics subcommittee – will review material to filter security sensitive material, collect approvals some individuals mentioned and any other ethical issues.

INDUSTRY NEWS

SAAB - South African EW technology excelling on global stage

South African electronic warfare technology has, and continues to make its mark in the international military arena, with home-grown self-protection systems being used by numerous defence forces around the world.

An impressive range of defence forces – including India, Malaysia, United Arab Emirates, Saudi Arabia, Algeria, Oman, Switzerland, Spain, Portugal, South Korea, the Netherlands, Brazil, Canada, Egypt, Germany, Peru, and Greece - are using indigenous South African electronic warfare technology, with 90% of the systems being designed and produced in Saab Grintek Defence facilities in South Africa. It is a little known fact that roughly ninety-five percent of the systems manufactured in South Africa are sold to export markets, making it a valuable source of revenue for South Africa. Job creation in engineering and production are additional advantages. To illustrate this further, at a recent function held by the Department of Trade and Industry, Saab Grintek Defence was awarded the distinguished title as Best Export Company in South Africa.

"There is this assumption that Africa is not strong when it comes to technology and innovation, but this turns that view on its face," says Chris Skinner, head of marketing and sales at Saab Grintek Defence.

He says Saab's Integrated Defensive Aids Suite (IDAS) for airborne platforms provides users the ability to determine whether they are being observed by radar systems, warns the pilots when missiles are fired at the platform and when they are being illuminated by laser based threats, and then delivers appropriate countermeasures when fired upon - which requires keeping track of every type of signal out there.

Saab's integrated defence aids system (IDAS) is an electronic warfare system designed to provide multi-spectral self-defence in sophisticated, laser warning, missile approach warning, as well as radar based threat scenarios, and is suitable for both helicopters and fixed wing aircraft. Protection systems are also developed and produced for both land and naval applications.

Skinner says that Saab South Africa's contract with the Indian air force, one of its biggest customers to date, with a current order value in excess of R400 million, is the perfect illustration of long-term use of South African products and technology as this platform will remain in production for many years to come.

"India developed a local helicopter, the ALH or advanced light helicopter, with Saab selected as the default self-protection system for its air force and army. We're now working with them on several levels: the provision of the original systems, training and technology transfer to allow the Indian industry to initially handle the in-country support, and eventually almost full local production of our systems," he explains.

Apart from air force customers, Saab is also supplying original equipment manufacturers (OEM's) such as Agusta Westland and

Eurocopter with self-protection systems as well as avionic equipment including Health and Useage Monitoring, Mission Recorders and Communications Controllers, for inclusion into packages for their end customers.

"With IDAS, a locally developed and manufactured product, airborne platforms can radically improve defensive and operational capabilities, which in itself is gratifying, but add the significant source of export revenue and it becomes something of which we are extremely proud," comments Magnus Lewis-Olssen, Saab South Africa's CEO.

Poynting Antennas - Ready to break ground on anechoic chamber

The greatly anticipated addition to Poynting Antennas test capabilities in Wynberg grows nearer with the radar absorber material due to arrive in South Africa early in August. The structural changes to the building will commence on 12 August and the final commissioning of the chamber is anticipated to be complete by 5 September. "This facility will enable Poynting to test a wide range of their products to high levels of accuracy and with a great improvement in flexibility and planning capability" said Poynting Defence and Specialized Chief Technical Officer Dave Howie. Large physical structures and low frequency antennas will still need to be tested at external ranges like Paardefontein. The picture shows an example with Poynting's 20MHz to 6GHz 4 band, 5 element DF interferometer.
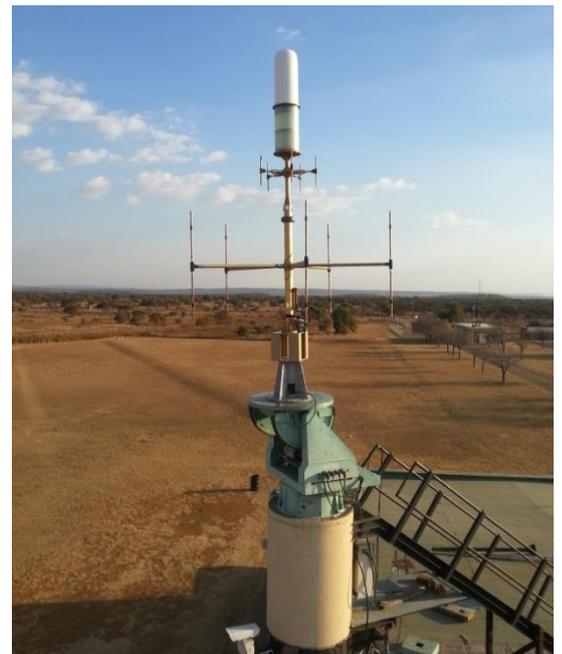
SIMULATION CONFERENCE FEEDBACK

Author: Brian Burmeister

EW Research and Applications, CSIR DPSS

2013 Spring Simulation Multi-Conference (SpringSim'13)
April 7 - 10, 2013 | Bahia Hotel | San Diego, CA, USA

The spring modelling and simulation multi-conference of 2013, hosted by the society for modelling and simulation international (SCS), was held in San Diego, USA. Very soon after my arrival it was clear that this is a city with strong ties to the military. The presence of the US Navy can be seen throughout the city. Navy base San Diego is the principal home port of the pacific fleet, consisting of 54 ships. While walking along the harbour it is impossible to miss the two Nimitz class aircraft carriers, each with a crew compliment of up to 5500 people and each typically accommodating around 64 aircraft. The scene was certainly set for a conference with strong links to the military user community.

The multi-conference was held over a four day period from 7 to 10 April, and also included many application domains other than military. The symposia organized under the roof of SpringSim 2013 were:

- Agent-Directed Simulation (ADS) Symposium
- 46th Annual Simulation Symposium (ANSS
- 16th Communications and Networking Symposium (CNS
- Symposium on Emerging M&S Applications in Industry and Academia (EAIA
- 21th High Performance Computing Symposium (HPC
- Symposium on Military Modelling & Simulation (MMS)
- Symposium on Simulation for Architecture and Urban Design (SimAUD)
- Modelling and the Humanities (MatH)

In total one hundred and thirty four peer reviewed papers were presented within the 9 symposia running in parallel. A total of five tutorial sessions were also presented on various aspects of M&S as well as a student participation event known as the NASA SmackDown. The multi-conference was attended by roughly 200 delegates. When comparing the number of delegates to the annual international AOC conference, it may seem small, but the smaller number of delegates along with the many parallel sessions created an environment conducive to interaction where spontaneous discussions on a paper often followed the presentation.

During the welcome address special mention was made about the strengthening of M&S as an academic discipline. Currently two universities in the USA offer post graduate qualifications in M&S to PhD level (University of Central Florida and Old Dominion University), with Arizona State University starting up a program as well. There is even movement towards introducing M&S as a high schools subject.

In his keynote address, Tag Gon Kim, Author of "Theory of Modelling and Simulation", indicated that there is a trend towards the simulation of Systems of Systems. The system models should integrate independent of implementation platform and should contribute to an environment where various system simulations can interoperate with each other. Another trend in modelling and simulation is the "Cloud". This could range from the integration of cloud computing in simulation architecture to modelling the cloud itself.

During the conference special effort was made to also involve students from all over the world in an event called the NASA SmackDown. The event is concerned with getting teams of M&S students from various universities to collaborate in a widely distributed simulation. The simulation of choice was the establishment and running of a lunar station. For this particular event at least 7 universities participated along with a team from NASA. During the evening event the respective universities had to join the distributed simulation with each university contributing models to the overall lunar station. The event concluded with the lunar station successfully defending itself against a rogue asteroid heading straight for the station.
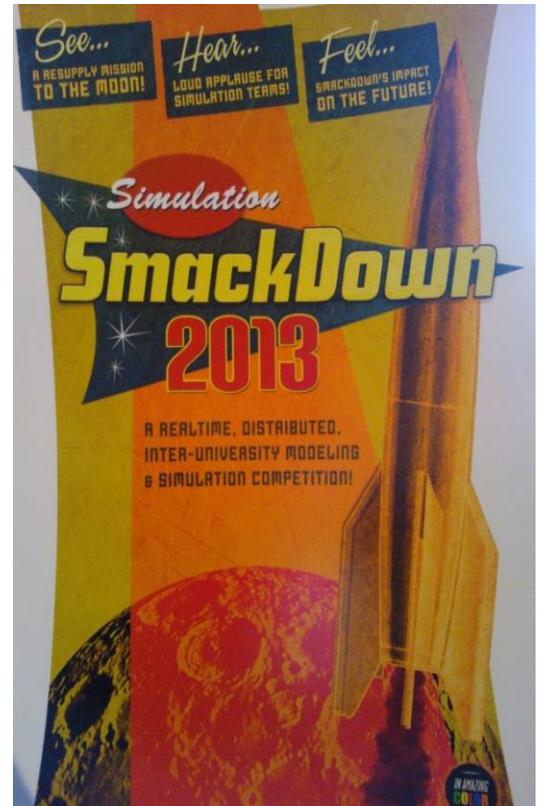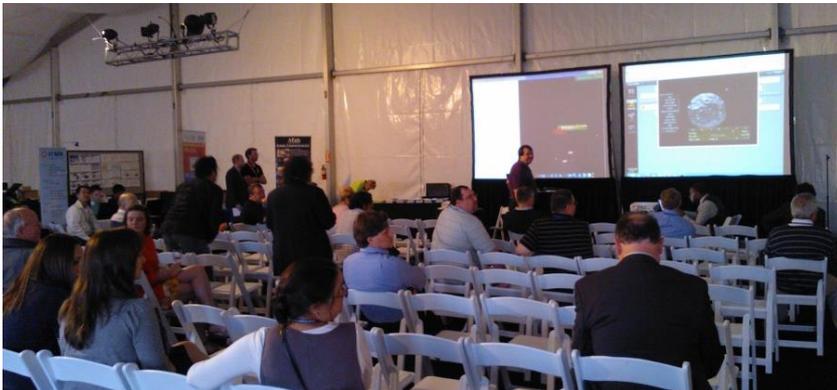
A particularly interesting session was when leaders in the field of M&S came together to discuss "Grand Challenges on the Theory of Modelling and Simulation". Azam Khan mentioned that the concept of live simulations will become more prevalent. These are simulations that run continuously and that can control physical systems or inform decision makers. Think of a simulation of an area of interest where weather data is streamed to the simulation and a user can simply plug his model into the area of interest and observe how the model interacts with the environment. The modelling of human behaviour remains a challenge according to Katherine Morse. Progress has been made on models used for representation but reliable and repeatable models for prediction of human behaviour remains a challenge.

Andreas Tolk highlighted cloud computing as a field of increasing importance. The cloud is starting to influence our daily lives more and more in terms of online storage or services. He expands these concept to the M&S domain, where a client can, for example, make use of a cloud-based M&S service for personnel training. Replicability of models, being the ability to independently create a new implementation of a model and reproduce the model results, is identified as a challenge by Levent Yilmaz. He suggests that in order to facilitate replicability, provision of an extensible and platform neutral interchange language for the specification, distribution, and transformation of model, simulator, and experimental frame elements is critical. He highlights that the danger exists that the inability of others to independently reproduce and verify published results will slow down the adoption and use of knowledge embedded within models. To address the challenge of collaboration on complex system design and its simulation, Justina Zander suggests the democratization of M&S. This refers to the widely-directed and user-empowering adoption of M&S technologies that can be a key enabler for progress on system design. These challenges were presented in a positive spirit to engage the M&S community and to encourage continuous efforts to address them.

Throughout the conference interaction among the delegates were encouraged along with active participation in the M&S community. Along with the Spring conference there is also a yearly Summer M&S conference hosted by SCS. Preparations for next year's SpringSim conference has already started, with the call for papers currently open. For more information on the conference itself, or the call for papers, please visit:
http://www.scs.org/springsim#.Uda2um20zd1

ARMSCOR CEO AWARDS

The annual Armscor CEO Awards ceremony was held to recognise technical and non-technical employees for outstanding achievements in their respective fields. The 2012 CEO Awards function took place on 25 April 2013.

Awards in general are one of the initiatives driven by organisations to boost the morale of their employees. It is an endeavour to motivate staff by conferring on them prestigious awards as a token of recognition and appreciation for their excellent performance.

Armscor too has formal procedures in place by which the achievements of its employees are given recognition at the discretion of Management and in accordance with predetermined rules and practice. Members of the Department of Defence and of the South African National Defence Force are not excluded.

The CEO Awards are guided by and aligned with Armscor's core values namely:

- to lead by example and be role models for excellence,
- to be results driven and customer focussed,
- to show care and respect for others,
- to strive for excellence in all we do, and
- to take joint responsibility through teamwork.

The CEO Awards ceremony is about celebrating people who took a decision to be active participants rather than passive onlookers; it is about celebrating enthusiasm, commitment and sheer hard work.

The process of preparing for the CEO Awards started in June last year. A Task Team of twelve people was appointed to consult all the relevant stakeholders, compile the selection criteria, facilitate the nominations process, and to make all other logistical arrangements that culminated in the CEO Awards gala event.

The Awards feature two categories, namely technical and non–technical.

Technical

The following projects were nominated in the technical category:

Ultrasonic Broken Rail Detector - Winner

Many methods are employed to improve the reliability and the timeliness of detecting rail breaks on railway lines throughout the world. The Institute for Maritime Technology developed an Ultrasonic Broken Rail Detector to warn local freight rail operators when breaks occur.

Operational Urgent Command & Control System

The Operational Urgent Command and Control System addresses the SANDF requirement for a command and control support system. Saab Systems Grintek has provided the CHAKA Command and Control Software suite as the solution for the Operational Urgent Command and Control System.

Tp201004 – Extended Range Munition

Investigations into ramjet technology were initialized within the Defence Research Development Board (DRDB) environment in the early 1990s. Since then Flamengro has been involved in maturing the technology required for the Extended Range Munition to operate satisfactorily. Specific issues related to the design and implementation of a warhead for the Extended Range Munition was identified in the Rheinmetall Denel Munition (RDM) project.

Tactical Intelligence System for the SA Army

The Tactical Intelligence System was developed for the SA Army to fulfil the requirement for the development of an operational capability for conducting tactical intelligence during external and internal operations; and for the development of a training system for integrated, team and individual training of intelligence operators.

Replacement of Avionic Suite on Pilatus Astra

In 1995 a total of sixty Pilatus ASTRA aircraft were commissioned at Central Flying School Langebaanweg. This project entails the replacement of the avionic suite on 35 aircraft with a new suite with an Mean Time Between Failure (MTBF) of at least 80 hours which will allow the South African Air Force (SAAF) to reduce its fleet size substantially.

Non-Technical

The following projects were nominated in the non-technical category:

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Armscor Women's Day Celebration - Winner

To celebrate 2012 Women's Day, a project team, with the support of many employees, organized a charity event to donate toiletries to the SOS Children's Village – a home for orphaned and abandoned children. The generous effort was so much appreciated that Armscor was presented with an award at the 30th Anniversary of the SOS Children's Village.

ADI Socio-Economic Dev in Prieska

As part of Armscor Defence Institutes' (ADI) Socio-Economic Development Programme to uplift and improve the quality of lives of communities in which it operates, ADI invested in an Information Technology (IT) infrastructure at three schools in the impoverished rural community of Prieska.

All the projects that were nominated went through a rigorous evaluation process to determine the winner in each category. The evaluators are Senior Managers in the technical and non–technical fields who are designated by the Management Board.