Schedule

Conference Theme: New Trends in Complex Systems Engineering

On-site Registration: 16:00-20:00, Oct. 29 2023, at Venue Hotel Lobby
Venue Hotel Address: Kuntai Hotel Beijing, No.2, Qiyang Road, Chaoyang District, Beijing, China, 100102,

Program Day 1 (Oct. 30 2023, Monday, Ballroom B+C for the Plenary Session)			
8:30	9:00	On-site Registration	
		Opening Ceremony Chair: GUO Mengyu, Assistant Research Professor, Department of Industrial Engineering, Tsinghua University	
9:00	9:20	Opening Address by Prof. ZHANG Xinguo, Co-Chair of CSD&M2023	
		Opening Address by Prof. Daniel KROB, Co-Chair of CSD&M2023	
		Welcome Address by YAO Junchen, Chair of Organizing Committee	
		Keynote Lectures Chair: Prof. ZHANG Xinguo, Distinguished Professor, Tsinghua University Director of Complex Systems Engineering Research Center President of INCOSE Beijing Chapter	
9:20	9:50	Keynote 1: Prof. Daniel KROB, President, CESAMES Systemic Digital Twins: the Example of the Transformation of Dunkirk's Port	
9:50	10:20	Keynote 2: Dr. QIAN Zhongyan, Director, COMAC Beijing Aircraft Technology Research Institute (BATRI) Applied MBSE Progress of Chinese Commercial Aircraft	
10:20	10:50	Coffee Break and Sponsors & Partners Booth Visits	
10:50	11:20	Keynote 3: Prof. Guy A. BOY, Professor & Chair, CentraleSupélec (Paris Saclay University) & ESTIA Human Systems Integration	
11:20	12:20	Gold Sponsors Success Stories (Dassault Systèmes, Pure Systems and AVIC Digital)	
12:20	14:00	Lunch Break and Booth Visits	
		Contributed Talks Track 1 (Ballroom C) Chair: Guy André BOY Professor & Chair CentraleSupélec (Paris Saclay University) & ESTIA	Contributed Talks Track 2 (Room 6+7) Chair: ZHANG Chi Expert, COMAC Beijing Aircraft Technology Research Institute (BATRI)	Dassault Systèmes Workshop
14:00	14:15	An Architectural Design and Architectural Transformation Method Based on the Complex Real-time Embedded Systems (JI Hongxin)	Research on Hard-ware-in-the-loop Simulation for Aircraft Electric Power System (WANG Danyang)	Dassault Systèmes Workshop

14:15	14:30	The Research on the Task Scheduling and Optimization Technology for Flight Tests (XIAO Gang)	An Assumption of R&D Method Driven by Model and Data (SONG Wenming)	Dassault Systèmes Workshop
14:30	14:45	A Systems Engineering Framework That Integrates Aircraft Final Assembly Design Activities (LI Tao)	Research on the Model-Based Process and Method for Aviation Equipment Requirement Demonstration (TAN Siyang)	
14:45	15:00	Enterprise Modeling for Architecture-centric Production Systems Planning (GUO Mengyu)	Model-Based Embedded Radar System Software Development and Verification (TAN Yue)	
15:00	15:15	Model Compression Method Based on Knowledge Distilling and Adversarial Learning (DU Ming)	Model-based Design Method and Practice of Avionics System Architecture in Civil Aircraft (TANG Xinyi)	
15:15	**16:00**	**Coffee Break and Booth Visits**		
16:00	16:15	Model Based Analysis and Verification Method for Helicopter System Performance Requirements (XIN Ji)	Applying Systems Thinking and Architectural Thinking to Improve Model-Based Systems Engineering Practice: Concepts and Methodology (WANG Zhe)	Dassault Systèmes Workshop
16:15	16:30	Design of Ground Integrated Testing Equipment Based on MBSE (CUI Delong)	Top-down Military System-of-systems Design using MBSE Based on UAF: A Case Study (LIU Naihao)	
16:30	16:45	The Virtual Twin Experience-Shaping the Future of Systems Engineering (WANG Gan)	Risk Assessment Method of Aircraft Engine Product Supply Chain Based on AHP Analysis (YU Jian-Hua)	
16:45	17:00	An Adaptive Assembly Process Modeling Approach for Aircraft Manufacturing: Distinguishing Between Product-specific Constraints and Optimal Assembly Sequences (HE Lei)	A SysML-based Architecture Framework for Helicopter (WANG Le)	
17:30	19:00	Conference dinner (purchase separately)		

Program Day 2 (Oct. 31 2023, Tuesday, Ballroom B+C for the Plenary Session)

Contributed Talks

		Track 1 (Ballroom C) Chair: Dr. Pierre VIALETTES, CIO, Airbus China	Track 2 (Room 6+7) Chair: GUO Mengyu, Assistant Research Professor, Department of Industrial Engineering Tsinghua University

9:00	9:15	Design Method of Task Meta-model of Avionics System Architecture Based on DM2 (CHEN Cong)	Modeling the Impact of Interdependency Among Capabilities in System of Systems Context Using Unified Architecture Framework and Choquet Integral (REN Xusheng)
9:15	9:30	Research and Application of Decoupling Method for Fuel System Testing in the Final Assembly Stage of Aircraft Complex Systems (YE Bo)	Investigation of a Model-based Approach to a Grid Fin System Design (ZHANG Wenfeng)
9:30	9:45	Research on the Concept of MAV/UAV Cooperative Combat Based on UAF (ZHANG Shuang)	Research and Application of Model-based Aircraft Complex Function Analysis Method (LIU Meng)
9:45	10:00	A Method for Generating Radar System Logical Architecture Models Based on Domain Ontology (LI Chang)	Study of MBSE Development Framework for Flying Cars (ZHANG Lei)
10:00	**10:30**	**Coffee Break and Booth Visits**	
10:30	10:45	An Effective Approach for Model-Based Radar System Architecting (SUN Jiaheng)	A Unified SoS and System Architecture Modeling Framework Based on Grid-type MBSE Methodology (GUO Yuqiang)
10:45	11:00	Design and Modeling of Nuclear Power Inspection Robot Based on MBSE (ZHANG Jia)	A Novel MBSE-based Design Method for Search and Rescue Humanoid Robots (WANG Mengyue)
11:00	11:15	PRODEC-based Task Analysis for the Design of Semi-automated Trains (SUN Yang)	Architecture Design of Model-Based Land Combat Equipment System (LIU Qiang)
11:15	11:30	A Systematic Approach to Conducting FHA (WANG Jian)	A Generalized Reuse Framework for Systems Engineering (WANG Gan)
11:30	11:45	A Generative Architecture Design, Trade-off and Optimization Method and Process for Complex Systems (ZHANG Qili)	Building A Unified Model-Based SoSE and SE Tool-Chain Framework Economically Based on Data Exchange Mechanisms (GUO Yuqiang)
11:45	**14:00**	**Lunch**	
		Keynote Lectures Chair: Daniel KROB, President, CESAMES	
14:00	14:30	Keynote 4: Prof. WANG Feiyue Chinese Academy of Sciences Foundation/Infrastructure Systems and Foundation/Infrastructure Intelligence: A New Frontier for Systems Engineering and Systems Intelligence	
14:30	15:00	Keynote 5: Prof. Antoine RAUZY, NTNU (Online) Towards Simulated System Architecture with Sigma	
15:00	15:30	Keynote 6: ZENG Wen, General Manager AVIC Digital Research and Practice on System Virtual Integration Framework for Aircraft Overall Design	

15:30	16:00	Coffee Break and Booth Visits
16:00	16:30	Keynote 7: Dr. ZHANG Wenfeng, Deputy Chief Engineer, Aerospace System Engineering Institute Report on MBSE Exploration and Practice in ASES's Launch Vehicles
16:30	17:00	Keynote 8: Dr. Pierre VIALETTES, CIO, Airbus China Airbus China Digital Manufacturing Optimization: Achievements and Challenges
17:00	17:20	Conclusion and Presentation CSD&M2024

Extra Program (Nov. 1 2023, Wednesday)		
8:50	12:00	Field Visit to Beihang University (Shahe Campus)
8:50		Gather in the lobby of venue hotel
9:00		Depart from venue hotel
10:00		Arrive at Beihang University (Shahe Campus)
10:00	12:00	Technical visit
		1. Integrated Digital Aircraft Research and Education Center
		2. 4 meters×3 meters Aeroacoustic Wind Tunnel
		3. Future Aero Engine Collaborative Design Center
12:00	13:00	Lunch
13:00	14:00	Return to venue hotel

CSD&M2023 Keynote Speakers

Keynote 1

Daniel KROB

CESAMES
President

Lecture Title: Systemic Digital Twins: the Example of the Transformation of Dunkirk's Port

Lecture Summary/Abstract:

Systemic digital twins allow to pass in a smooth way from model-based systems engineering (MBSE) to system simulation, based on the system formal specification language S and on the WordLabä technology.

We shall illustrate this approach on the case study of Dunkirk's port where it was applied with success in order to analyze and quantify the impacts along the next 10 years of a structuring transformation – replacing coal traffic by container traffic – on the various port logistic infrastructures, allowing to secure the investment strategy of the port for the forthcoming decade.

Biography:

Daniel KROB is currently president of CE.S.A.M.E.S. (Centre of Excellence on Systems Architecture, Management, Economy & Strategy), the leading French company in systems architecting & engineering.

Graduated from Ecole Normale Supérieure (1981-1986), he received his PhD thesis (1988) and his second thesis in Computer Science (1991) from University Paris 7.

Daniel KROB had several key academic positions : he was scientific secretary of the 7th section (Information sciences & technologies) of the French National Committee for Scientific Research (1991-1995) ; he directed the national research network in "Mathematics and computer science" (1995-1997), involving around 1,000 researchers ; he was founder and director during six years of the main laboratory of computer science of University Paris 7 (LIAFA; 1997-2002), bringing it in the top-3 French laboratories in its domain. From 2001 to 2013, Daniel Krob also founded and directed the master department of the most important French software engineering school (EPITA). Finally, he was founder & head of the Ecole Polytechnique – Thales industrial chair "Engineering of complex systems" (2003-2015) and institute professor in computer science at Ecole Polytechnique, the most prestigious French engineering university up to 2019. Currently he is also distinguished visiting professor at Tsinghua University (2022-).

Internationally known in several scientific domains, Daniel KROB wrote more than 100 papers on various topics such as algorithms, algebraic & enumerative combinatorics, control theory, discrete mathematics, mobile communications, quantum groups, signal processing, system theory or theoretical computer science. He is the author of several books and of five patents in various domains (computer security, mobile communications, traffic optimization, digital twin architecture). Daniel Krob was head during 10 years of the steering committees of two main international scientific conferences in combinatorics and theoretical computer science. He also created & chaired the "Complex Systems Design & Management" international conference since 2009. More recently, he established the "Digital Twin Design & Operation" conference whose first edition will be organized in Paris by December 2023.

Nowadays Daniel KROB specialized in systems architecting, engineering and modelling. He worked for major companies (e.g. Airbus, Alstom Transport, Ariane Group, AVIC, Bouygues, COMAC, EDF, Framatome, Huawei, Kawasaki Heavy Industries, Nissan, Renault, Safran, Schneider Electric, Stellantis, Société Générale, Sony, etc.) in many areas such as aeronautics, automotive, bank, energy, high tech, railway, services and space. He is one of the leading professional experts in systems engineering in the world, recognized as a Fellow by the International Council on Systems Engineering (INCOSE). Within CESAMES, he trained more than 10,000 engineers around the world in systems architecting, especially through dedicated on-the-job trainings. He conducted lots of consulting missions in systems architecting & engineering around the world, advising the top managers in these domains, and directed two important digital industrial transformation programs – in Airbus and PSA – dedicated to the installation of model-based systems engineering at enterprise levels. He also developed the CESAM (CESAMES Systems Architecting Method) methodology and created with Antoine Rauzy the S system specification language and the WorldLab systemic digital twin technology.

Keynote 2

QIAN Zhongyan

COMAC, CHINA
Director

Lecture Title: Applied MBSE Progress of Chinese Commercial Aircraft

Lecture Summary/Abstract:

In the development of high-end and complex civil aircraft product, a series of challenges have been faced for a long time. In recent years, COMAC has carried out a series of explorations and applications around Agile Model-Based Systems Engineering (aMBSE), a methodology that emphasizes a unified authoritative source-of-truth system model as well as a spiral iterative R&D model, using a graphical-based modeling language to improve communication and R&D efficiency, and to simultaneously acquire the system require-ments as well as the design decisions to meet the requirements. Simulation of the system model can be used to verify functionality and performance and optimize choices. Therefore, through the application of aMBSE, it can improve the correct understanding and definition of problems, strengthen the accurate definition and delivery of requirements, and improve the access to and control of the whole system, thus realizing the effective management of product lines.

Biography:

QIAN Zhongyan, Ph.D. in Engineering/Philosophy and Researcher. He is the Director and Deputy Party Secretary of COMAC Beijing Aircraft Technology Research Institute (BATRI); Chairman and General Man-ager of COMAC TIMES (Shanghai) Aviation Co., Ltd. He has served as the Director, Executive Deputy Chief Designer of System Engineering and Project Management Department of COMAC, Deputy General Manager of System Engineering for the C919 Passenger Aircraft Project and the Long-Range Wide-Body Aircraft Project; Deputy Chief Designer of C919 Large Passenger Aircraft. He is the Executive Deputy Director of Shanghai Commercial Aircraft System Engineering Technology Innovation Center. He is a member of the 10th and 11th Councils of the Chinese Society of Systems Engineering; member of the S-18 System Safety Committee, SMC G-33 Configuration Management Committee, and G-47 System Engineer-ing Committee of the Society of Automotive Engineers (SAE). He is the author of "COMAC System Engi-neering Manual", translator of "Commercial Aircraft System Engineering - Specific Field Applications", and has published over 50 papers in domestic and International, SCI, EI, and core journals and conferences. He has received honors such as the COMAC Science and Technology Progress Award, and the title of "Outstanding Contribution Individual" from COMAC.

Guy André BOY

CentraleSupélec (Paris Saclay University) & ESTIA
Professor & Chair

Lecture Title: Human Systems Integration

Lecture Summary/Abstract:

This keynote will emphasize a growing research and practice field, Human Systems Integration (HSI), which denotes both a process and a product at the confluence of several areas, such as systems engineering, human factors and ergonomics, information technology, and specific sectors, such as aerospace, health, and energy. It will provide state-of-the-art and current development of consistent terminology and, to some extent, an acceptable ontology of HSI for the analysis, design, development, and evaluation of socio-technical systems. HSI is a broader transdisciplinary field in our increasingly complex human-machine world that focuses on integrating technology, organizations, and people within a complex sociotechnical system throughout its life cycle. Therefore, HSI is no longer a question of usability and user interface design once a complex machine is technologically developed but essentially about considering people and organizations early in the design and development processes. Indeed, rooted in industrial and systems engineering research and operational worlds, HSI requires a deeper foundation based on an epistemological approach. This assertion is even more crucial today as technology has become predominantly digital, and, more specifically, the concept of the digital twin is emphasized because it has become essential to support Model-Based HSI (MBHSI). In other words, software-based assistant systems are replacing traditional tools for modeling, documenting, and supporting socio-technical systems. Therefore, appropriate social-cognitive (multi-agent) models and methods are helpful throughout the life cycle of contemporary sociotechnical designs to account for the complexity and tangibility of their human-centered context-sensitive architectures, combining procedural and declarative knowledge. These architectures must be flexible and robust enough to handle normal, abnormal, and emergency operational situations, which can be expected or unexpected. Considering these reasons, this keynote will provide a set of fundamental axioms, some theoretical abstractions, and valuable practical models, which will be presented and illustrated through contemporary examples useful for validating an evolutionary HSI ontology.

Biography:

Guy A. Boy, Ph.D., is a University Professor at Paris Saclay University (CentraleSupélec) and Chairman of the Scientific Council of ESTIA Institute of Technology, France. He is also Visiting Scholar at ISAE-SUPAE-RO (the French Aerospace Institute of Technology). He is an INCOSE Fellow (Human-Systems Integration [HSI] Working Group Chair and member of the FuSE project), Fellow of the French Air and Space Academy, and Fellow of the International Academy of Astronautics. He is very active in the development of HSI world-wide. He was Professor and Dean of the Florida Institute of Technology Human-Centered Design Institute (HCDi), and HCD Doctoral School, Senior Research Scientist at the Florida Institute for Human and Machine Cognition (IHMC), and IPA Chief Scientist for HCD at NASA Kennedy Space Center. He was a member of the Scientific Committee of the Single European Sky for Air Traffic Management Research (SESAR) program from 2013 to 2016. He was Chairman of the Organizing Committee of the ISU (International Space University) SSP (Space Studies Program) FIT/NASA-KSC 2012 (SSP12). He has been an adjunct professor at the École Polytechnique de Paris (Comasic Master). He was a member of the Board of Professors of the Master in Complex Systems Engineering of Paris Saclay University. He was President and CEO of the European Institute of Cognitive Sciences and Engineering (EURISCO, a research institute of Airbus and Thales). He co-founded EURISCO in 1992 and led it from its creation until its closure in 2008. Between 1980 and 1991, he worked in artificial intelligence and cognitive sciences at ONERA (French Aerospace Lab) as a researcher and group leader and at NASA Ames Research Center in California as the Advanced Interaction Media Group Lead. Engineer and researcher in cognitive sciences, he obtained his degrees (including a Master's in 1977 and Doctorate in 1980) from ISAE-SUPAERO (French Aerospace Institute of Technology), the Research Professor Habilitation (HDR) from Sorbonne University in 1992, and his Qualifications of University Professor in Computer Science and Psychology in 1994.

He actively introduced and developed Cognitive Engineering, HCD, and HSI worldwide, notably within ACM (Association for Computing Machinery), IEA (International Ergonomics Association), and INCOSE. He co-founded Bordeaux's French Cognitive Engineering School (École Nationale Supérieure de Cognitique or ENSC). He co-founded the HCI-Aero conference series (1986-2016) that led to INCOSE HSI Conferences and Workshops. He is the author of more than 200 refereed scientific and technical papers and several university textbooks, such as Intelligent Assistant Systems (Academic Press, USA, 1991), Cognitive Function Analysis (Praeger, USA, 1998), the Handbook of Human-Machine Interaction (CRC, USA, 2011), Orchestrating Human-Centered Design (Springer, UK, 2013), Tangible Interactive Systems (Springer, UK, 2016), Human Systems Integration (CRC, USA, 2020), Design for Flexibility (Springer, UK, 2021), and Risk Taking, Prevention and Design (CRC, USA, 2022). He was elected Senior Member of ACM in 2009 (Executive Vice-Chair of ACM-SIGCHI from 1995 to 1999) and Chair of the International Ergonomics Association (IEA) Aerospace Technical Committee (2008-2022). He is the Ambassador of the INCOSE-IEA partnership worldwide since 2021.

Keynote 4

WANG Feiyue

Chinese Academy of Sciences, CHINA
Professor

Lecture Title: Foundation/Infrastructure Systems and Foundation/Infrastructure Intelligence: A New Frontier for Systems Engineering and Systems Intelligence

Lecture Summary/Abstract:

In this report, we will briefly introduce the concepts, architectures, processes, methods, and technologies of Foundation systems and foundation intelligence, infrastructure systems and infrastructure intelligence, and their relationship with foundation models as well as ChatGPT like AGI and AIGC techniques. Perspectives of those new approache for a new frontier of systems engineering and systems intelligence will be addressed.

Biography:

Fei-Yue WANG received his Ph.D. in Computer and Systems Engineering from Rensselaer Polytechnic Institute, Troy, New York in 1990. Currently, he is the Director of the State Key Laboratory for Management and Control of Complex Systems, CASIA, the EiC of IEEE Trans. on Intelligent Vehicles and China's Journal of Intelligent Science and Technology, and the President of CAA Supervision Council. His current research focuses on methods and applications for parallel intelligence, social computing, and knowledge automation.

Antoine B. RAUZY

Norwegian University of Science and Technology
Professor

Lecture Title: Towards Simulated System Architecture with Sigma

Lecture Summary/Abstract:

This talk aims at presenting Sigma, a new modeling language for dedicated to the design and the analysis of complex technical and socio-technical complex systems.

Graphical notations such as SysML are a key asset for Systems Engineering. However, they lack a formal semantics. Consequently, attempts to perform computerized simulations from these models are tool-dependent at best and require designing an ad-hoc semantics on top of the notations.

The success of modeling environments such as Matlab-Simulink and Modelica (Multiphysics simulation), AltaRica (safety), or Vensim (Systems dynamics) shows however the interest of computerized simulations for complex system design and analysis.

Starting from the above consideration, we decided to design Sigma. Sigma is object-oriented and has a formal semantics in the first place.

Sigma relies onto two pillars. First, a description of the structure of the system under study as a hierarchical network of interconnected components. Second, a description of the activities performed in the system. These activities change the state of the system and possibly its structure. Interactive and stochastic discrete event simulations can then be performed to assess key performance indicators.

We are currently developing a full modeling environment for the design and the simulation of Sigma models. We are also already applying it on industrial applications.

The experience shows that designing Sigma models is extremely useful to better understand and to clarify what the behavior of the systems under study. Sigma makes possible high-level representations of the dynamics of the systems, i.e. representations at the right level of abstraction for systems engineers and system architects.

In this presentation, we shall introduce the key features of Sigma and illustrate by means of examples how it is used.

Biography:

Professor Antoine B. Rauzy is currently with the Norwegian University of Science and Technology (Trondheim, Norway).

During his career, he moved forth and back from academia to industry, being notably senior researcher at CNRS, associate professor at Universities of Bordeaux and Marseilles, professor at Ecole Polytechnique and CentraleSupélec, CEO of the start-up ARBoost Technologies, and director of the R&D department of Systems Engineering at Dassault Systemes (largest French software editor) and chief scientific officer at Systemic Intelligence.

Professor Rauzy got his PhD in 1989 and his tenure in 1996, both in computer science. He works on the reliability engineering for more than 30 years and on systems engineering for more than 10 years.

He published over 200 articles in international journals and conferences. He is on the advisory boards of several international conferences and journals and is regularly invited to deliver seminars and keynote talks.

He renewed mathematical foundations and designed state-of-the-art algorithms of probabilistic safety/risk assessment. He is also the main designer of the AltaRica language and proposed state-of-the-art concepts for model-based systems engineering.

He developed safety/risk assessment software that are daily used in industry and that are acknowledged as best-in-class tools.

Professor Rauzy teaches advanced programming methods, model-based systems engineering and reliability engineering. He has been the adviser of numerous master theses, twenty PhD theses and several post-doctoral studies.

He managed numerous collaborations between academia and industry, in Europe, in the USA and in Japan.

Keynote 6

ZENG Wen

AVIC Digital, CHINA
General Manager

Lecture Title: Research and Practice on System Virtual Integration Framework for Aircraft Overall Design

Lecture Summary/Abstract:

The increased complexity of aviation equipment has brought about a development paradigm shift. Especially in the overall design of aviation equipment, in order to accurately predict and assess the performance, characteristics, behavior and function of the aircraft, it is necessary to use the method of computer simulation, which virtually integrates the aircraft's key systems together with the scenario environment to carry out the simulation verification, to ensure that the aircraft's properties emerge through multi-system interactions, such that the design problems and failures are exposed in the front-end.

In this speech I will propose a new virtual synthesis framework for the overall design of aircraft, adopting system engineering methodology and layered abstraction. The first layer verifies the behavior, functions, interfaces, etc. of the aircraft architectural model through discrete-event simulation, and the second layer constructs a multidisciplinary-coupled dynamics model, which verifies the performance of the aircraft, the spatio-temporal relationship, etc.. The purpose is to realize the design synthesis, virtual testing, requirement verification and iterative optimization of aviation equipment at the early stage of design, so as to improve the level of equipment digital development.

Biography:

Zeng Wen graduated from Northwestern Polytechnical University with a master's degree in aero engine control in 1993, EMBA from HEC Paris. He is currently the general manager and deputy secretary of the party committee of AVIC Digital Corporation Ltd. (AVIC DIGITAL CENTER) and used to be the Deputy General Manager and CIO of China National Aero-Technology Import & Export Corporation (CATIC). As a researcher-level senior engineer, he committed to promoting the in-depth integration of new-generation information technologies and aviation manufacturing. He has won many awards, including the first prize of "Science and Technology Award" of Chinese Society of Aeronautics and Astronautics, the first prize of "Science and Technology Award"of AVIC, AVIC "Aviation Service for the Country" Gold Award and the AVIC General Manager's Award.

Keynote 7

ZHANG Wenfeng

Shanghai Aerospace System Engineering Institute, CHINA
Professor, Deputy Chief Engineer

Lecture Title: Report on MBSE Exploration and Practice in ASES's Launch Vehicles

Lecture Summary/Abstract:

Since the 14th Five-Year Plan period, ASES has been committed to fulfilling its mission and building a strong aerospace nation. It has been exploring digital transformation and development by leveraging MBSE (Model-Based Systems Engineering) technology as a key approach.

ASES has established the National Complex Equipment MBSE Alliance, leveraging the Digital Rocket and the Digital Moon of the Lunar Exploration Center as key initiatives. The aim is to build an autonomous and controllable MBSE platform, which serves as a driving force in creating a demonstration base for the transformation of defense science, technology, and industry through MBSE.

With the support of major MBSE projects in the civil aerospace sector, ASES Institute has established an MBSE general technical team, leveraging the next-generation launch vehicle as a foundation. Expert guidance has been sought to facilitate the systematic development of MBSE in the field of launch vehicles and to promote engineering application practices. This concerted effort aims to make significant progress in the construction of the launch vehicle MBSE research and development system and to effectively carry out the digital transformation.

Biography:

Prof. ZHANG Wenfeng, Chief Scientist of National Key Research and Development Program; Chairman of MBSE Committee at MBSE Laboratory of Aerospace System Engineering Institute; Assistant of Chief Designer of New Generation of Launch Vehicle.

Now her major responsibility is leading MBSE digital transformation for the new generation launch vehicle etc. For over 20 years, Prof. ZHANG Wenfeng has devoted herself to the research of MBSE (Model-Based Systems Engineering), virtual real systems, and digital twins. She is in charge of over 10 national projects and won a lot of honors such as "Chinese National Expert", "the first prize of State Science and Technology Awards", "Contribution Awards", "Best Partner", "Professional Prize", and "Pride prize" of "The most (Professional/Pride/Partner)" (Japan).

Keynote 8

Pierre VIALETTES

Airbus China
CIO

Lecture Title: Airbus China Digital Manufacturing Optimization: Achievements and Challenges

Lecture Summary/Abstract:

With the fast development of its aerospace and aviation industry, China is a strategic partner for Airbus, as evidenced by the fact that Airbus operates in Tianjin a final assembly line (FAL) that produces and delivers the A320 family aircraft, as well as a Completion and Delivery Centre for the A350.In order to run these operations in China, Airbus has developed a complex and efficient architecture around an SAP backbone complemented by Digital solutions to increase the efficiency of the assembly line and monitor the performances of the deliveries.The goal of this presentation is to share our best practices around the design and operation of the industrial system as well as exchanges on the main challenges we face related to local and international regulations.

Biography:

Pierre loves aerospace and had his glider pilot license before his driver license. He's been in Aerospace domains all his career, from his Ph.D. at ISAE-SUPAERO for the French Space agency on stratospheric balloons to his post-doc in Tsinghua University on foldable solar panels for satellites.In 2008, he was hired by Airbus to initiate the first R&T activities in China starting from scratch, extending to North Asia in 2013. During this period, he launched more than 70 projects with the top universities and tech companies in North Asia.In 2017, he built the Global Technology Scouting, a light & efficient team spanning on (almost) all continents (US, Canada, Europe, Russia, India, China and APAC). Their job was to wed with the local innovation ecosystems to identify new technologies and create business opportunities for Airbus.

Since 2022, Pierre is the head of Digital and Information Management for Airbus China. His team ensures all digital and IT operations for the 16 legal entities under Airbus China Roof including:
● Cybersecurity
● Network Infrastructure
● Information systems (all applications, including SAP)
● Digital Workplace (devices, PC, etc.)
● Digital solutions for Airbus Tianjin Final Assembly Line and other functions
● User experience

In addition to this role, Pierre is also a lecturer at Beihang University in China and trainer at Airbus Business Academy for Airbus employees and airlines on innovation management.