

**General Framework and Plenary Keynote Speakers of the Collocated Conferences**  
The 10<sup>th</sup> International Multi-Conference on Complexity, Informatics and Cybernetics: IMCIC 2019  
The 10<sup>th</sup> International Conference on Society and Information Technologies: ICSIT 2019  
The 9<sup>th</sup> Ibero-American Conference on Complexity, Informatics and Cybernetics  
*Novena Conferencia Iberoamericana de Complejidad, Informática y Cibernética: CICIC 2019*

***Workshops and Participatory Events*** – Tuesday, March 13<sup>th</sup> 2019, 10: 00 AM – 6:30 PM

**Conversational Session: 10:00 AM – 11:00 AM**  
***“The Intellectual Rigor of Interdisciplinary Communication”***



**Professor Donald Ropes**

**Inholland University of Applied Sciences, Netherlands**  
**Business Research Centre**  
**Research line: Learning and Development in Organisations**

Donald Ropes is Professor of Learning and Development in Organisations at Inholland University of Applied Sciences. His research is on learning in complex environments, specifically how we can help people and organisations to become responsive: able to absorb shocks, adapt and thrive in new situations and look for challenges that can be turned into opportunities. For more than ten years, Professor Ropes has been working on advancing Design Science Research as a way to contribute to organisations’ development while at the same time expanding organisational learning theory.



**Professor T. Grandon Gill**

**University of South Florida, USA**  
**College of Business**  
**Director of the Doctorate in Business Administration**  
**Editor-in-Chief of Informing Science**  
**Editor of the Journal of IT Education**

**Dr. Grandon Gill** holds an AB (cum laude) from *Harvard College* and an MBA (high distinction) and DBA from *Harvard Business School*. He is a professor and the Academic Director of the Doctor of Business Administration program at the *University of South Florida’s Muma College of Business*. He was also recently elected president of the *Informing Science Institute*.

Dr. Gill has published more than 60 peer reviewed articles, more than 60 case studies, and has authored or edited 11 books relating to his research in the informing science transdiscipline and in the use of case studies for education and research. Over the past decade he has served as principal investigator on two grants from the National Science Foundation, completed a core

faculty Fulbright in South Africa, and received the Gackowski award for his lifetime contributions to informing science research and the Ranulph Glanville award for his research activities.



**Dr. Nagib Callaos**

**International Institute of Informatics and Systemic, USA  
Editor-in-Chief of the Journal of Systemics, Cybernetics and Informatics**

**Dr. Nagib Callaos** is the Founding President of the a 32 years old Multi-Disciplinary Organization oriented 1) to solve real life problems which mostly require multi-disciplinary teams and inter-disciplinary research/communication and 2) to synergistically relate all disciplinary and inter-disciplinary departments of the University Simon Bolivar with private and public corporations. He also was the founding president of several organizations on research, development, and technological innovation and, for many years, consultant in Information Systems.

### **Abstract**

Julie Thompson Klein (Interdisciplinarity: history, theory, and practice, 1990) who, up to our knowledge, wrote the most comprehensive book on Inerdisiuplinarity. About the 40% of the book was used to list her references. With regards to interdisciplinary rigor she wrote:

Interdisciplinary work is often attacked for lacking rigor. However, rigor is not diminished. Rather, it is shifted from disciplinary criteria to a new interdisciplinary *objective*, to what (Singleton, 1983) a core sense of “interdisciplinary rigor.” There are no scholarly defined standards for judging interdisciplinary works but Stephen Schneider’s three criteria for disciplinary excellence are quite appropriate. Excellence of interdisciplinary research can be measured in terms of (1) disciplinary clarity, (2) clarity of cross-disciplinary communications, and (3) the utilization and combination of existing knowledge from many fields to help solve a problem or to raise or advance knowledge about a new issue (Shneider, 1977).

A purpose of this conversational session is to present a very clear way to assure a higher level of rigor in interdisciplinary communication, as related to disciplinary rigor. A main reason why “Interdisciplinary work is often attacked for lacking rigor” is probably because *confusing the notions of precision and rigor*. Disciplinary rigor is fundamentally based on the respective method and semiotic system. To translate from a disciplinary semiotic system to an interdisciplinary one requires an additional *creativity* at the syntactical, semiotic and pragmatic level. This, in turn, potentially requires the *creation* of analogies (via *analogical thinking*), metaphors, and similes. These three notions are different and should not be confused or, much less, taken as synonyms. We usually are similar to our parents, but we are no metaphors or analogies of them. Metaphors are *expressive* tools while, analogies are thinking processes that usually precede and *provide input to logical thinking* (induction, deduction, abduction, etc.

A second purpose of this conversational session is to provide a first step for a multi-authors article(s), i.e. a collection of short research-essays (1000-2000 words each) which objective us to generate a special issue of the journal, which necessarily should be based on the short essay and on the reflections that might emerge from this conversational session. Among the references in the articles of the special issue of the journal should be included a minimum of references 1) to the collection of short essays, as well to this conversational session and/or to the workshop to be delivered by Professor Donal Ropes in the afternoon (2:00 PM – 4:00 PM), shown below The references to any of the videos may mention the time of the video for which the reference is being made. These references may be based on reflections related to agreeing or disagreeing with them, as well as expanding on the respective reference. If this plan is successful, then, a multi-authored book will be published and, hopefully a series on this very important subject. This would increase the awareness on this issue and, hence, may generate the regulative and synergic cybernetics loops between the disciplinarity and inter-disciplinarity. A very general presentation will also be made in this session with regards to this potential and possible cybernetic loop.

Shneider, S. N. (1977). Climate Change and World Predicamentem: A case Study for inter-Disciplinary Research. *Climate Change, 1*, 21-43.

Singleton, R. J. (1983). Interdisciplinary Teaching with Humanists: Reflections of a Biological Scientist. *Perspectives in Biology and Medicine, 26* (2), 304-314.

Thompson Klein, J. (1990). *Interdisciplinarity: history, theory, and practice*. Detroit: Wayne State University Press. .

### **Participatory Workshop: 11:00 AM – 12:00 M & 1:00 PM – 2:00 PM**

***“How Growing Complexity Is Changing the Skills that our Students Need (and How We Need to Adapt as Educators)”***

**Professor T. Grandon Gill, University of South Florida, USA  
Short Bio is Given above**

#### **Abstract**

If you survey employers about what skills they are looking for in our students, you will nearly always hear about the soft skills of communications, problem solving, collaboration and willingness to learn. More recently, creativity and resiliency have made frequent appearances on such lists. Unfortunately, while such lists are interesting, they provide us with little guidance with respect to what specific skills within each area needs to be the focus of our educational efforts at each level or what pedagogical approaches are likely to be effective in helping our students to develop the appropriate skills.

The workshop will begin by looking at the nature of task complexity, which is characterized as existing in three forms:

1. *Experienced complexity*, which manifests itself in our mental and physical reactions to a task.

2. *Intrinsic complexity*, which can be assessed through the study of the problem space used to perform the task, and
3. *Extrinsic complexity*, which is driven by the relative fitness of task states and outcomes.

Based on an analysis of how these different types of complexity are evolving in today's world, it proposes a variety of sub-skills that will be valued within the broad categories of skills that employers appear to desire.

The second part of the workshop will involve active participation by attendees. Through discussion, we hope identify both well established and novel educational approaches that would be particularly relevant to identify the skills needed to cope with today and tomorrow's expected levels of complexity. No particular level of education is pre-supposed; suggestions applicable to primary and secondary school are as welcome as those for undergraduate, graduate and post-graduate education.

The participatory workshop's goal is to help the facilitator develop a list of approaches that can be incorporated into the plenary session that he will be giving at the conference later in the week.

### **Participatory Workshop: 2:00 PM – 4:00 PM**

#### ***Inter-Disciplinary Communication, Analogical Thinking, and Collaborative Learning***

**Professor Donald Ropes, Inholland University of Applied Sciences, Netherlands  
Dr. Nagib Callaos, International Institute of Informatics, and Systemics, USA,  
Short Bios are Given above**

### **Short Abstract**

In this workshop the presentation will be limited to 20 minute from the two speakers, then Professor Donald Ropes will engage the participants with each other in a a mock-up version of an interdisciplinary project meeting. After making and introduction to the concepts of analogical thinking, interdisciplinary communication, and interdisciplinary research, participants will work in groups of two or more and come up with ideas about three aspects of inter-and transdisciplinary work, namely the state of the system (épistémè), what the new system should look like (praxis, poïesis) and how to change it (phronēsis). The context will be our own teaching and learning paradigms. During the workshop data will be gathered on the topic of promoting and implementing interdisciplinary research ,which will be used for further discussions in the conference, as well as for the potential a multi-author article and/or for a special issue of the hournal similarly to hwo ir was describe above in the conversationas sessionon on *“The Intellectual Rigor of Interdisciplinary Communication.”*

Professor Donal Ropes ha a large and diversified experience on the method to be used in this workshop and, by experience, he knows that it is very effective for interdisciplinary work. This method will also produce data that we can use to write a paper for next year's conference, as well as for the potential multi-author article (short research-based essays) *and/or a special issue of the journal.*

## Conversational Panel: 4:30 AM – 5:30 PM

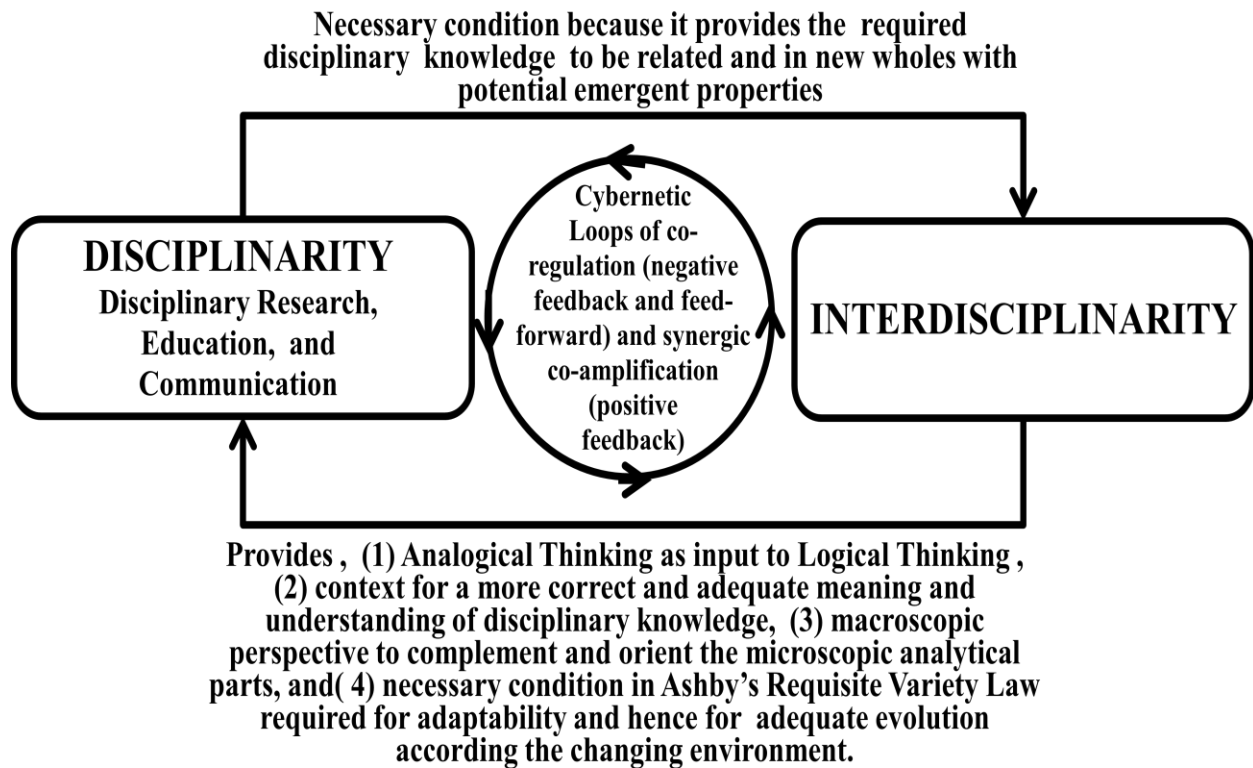
*“Cybernetics Relationships Between Disciplinarity and Inter-Disciplinarity.”*

*Being a conversational panel, each attendee may have the role of a panelist, i.e. makes reflection-based comments, ask questions, and provide experience-based or Knowledge-based answers.*

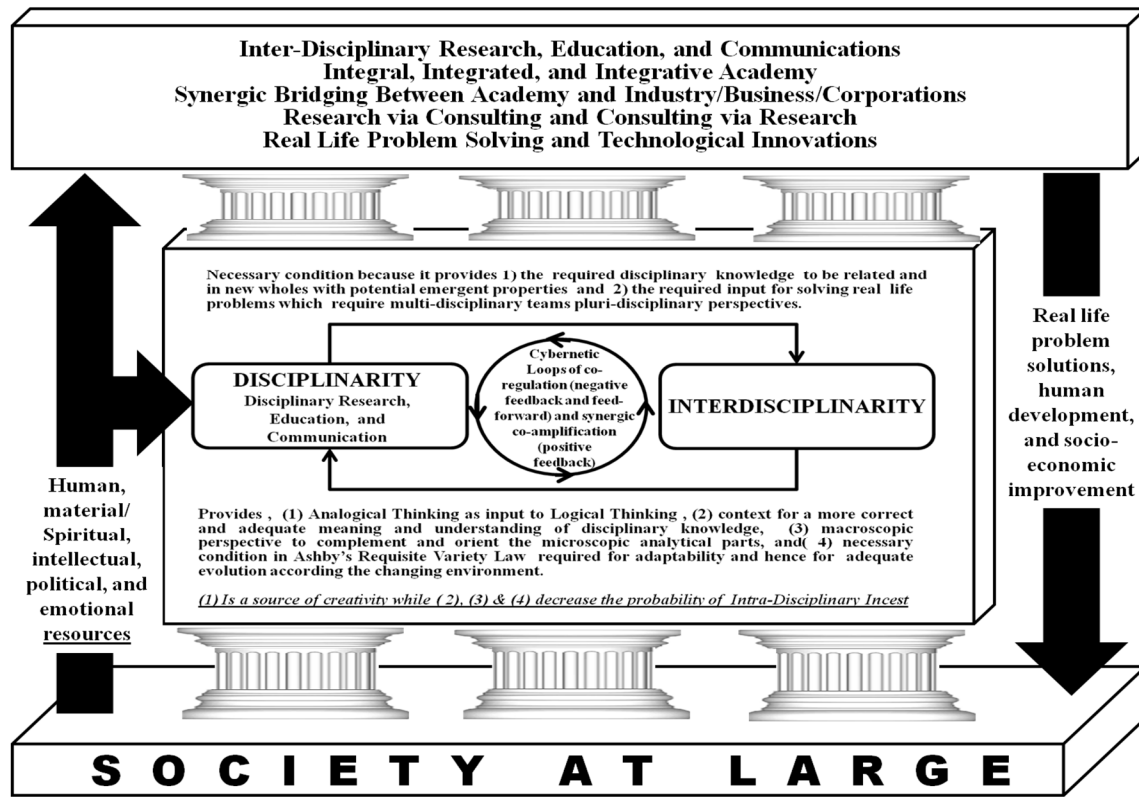
**Professor Donald Ropes, Inholland University of Applied Sciences, Netherlands**  
**Dr. Nagib Callaos, International Institute of Informatics, and Systemics, USA,**  
**Short Bios are Given above**

### Abstract

The case of frequently implicit relationships between disciplinarity and inter-disciplinarity will be presented as an introduction to the conversational panel. These relationships exist and are real, but they are *not always perceived*. Making them explicit may allow them to be adequately designed and implemented. Consequently, we will try to describe and collect collective comments of the these relationships. We will also distribute among the attendees an uncompleted draft paper with a little bit of more details regarding these relationships and the potential danger of *Intra-Disciplinary Inbreeding or Incest* where these cybernetic relationships are absent in a researcher or a research group.



(1) Is a source of creativity while ( 2), (3) & (4) decrease the probability of Intra-Disciplinary Incest



**Conversational Panel: 5:30 AM – 6:30 PM**

*“Inter-National Networks and a Meta-Network for Inter-Disciplinary Communication for Collaborative Learning, and Meta-Education Support.”*

*Being a conversational panel, each attendee may have the role of a panelist, i.e. makes reflection-based comments, ask questions, and provide experience-based or knowledge-based answers.*

- Dr. Risa Blair, Purdue University Global, USA**
- Dr. Suzanne Lunsford, Wright State University, USA**
- Dr. Nagib Callaos, IIS, USA (Short Bio is Given above)**



**Dr. Risa Blair**

**Purdue University Global, USA**  
**eLearning Instructional Designer**  
**Education Management**  
**Instructional Associates**  
**Director of HR and Operations**

**Dr Risa Blair** is Passionate leader and trainer with extensive experience in higher education and corporate settings, including project management, curriculum development and delivery for face-to-face and online settings. Exceptional skills in facilitating content delivery to meet the needs of the client. She is a Strong

proponent of utilizing real world experience and technology to promote and reinforce learning, as well as to meet required outcomes. Easily able to deliver technical content to non-technical audiences. Quality Matters trained online course reviewer.



### **Dr. Suzanne Lunsford**

**Wright State University, USA  
Professor of Chemistry**

**Dr. Suzanne Lunsford** is professor at Wright State University and is an electrochemist and an internationally established chemical educator. She has been working with colleagues from *international* universities on how to integrate interdisciplinary science labs to meet the needs of the 21<sup>st</sup> century. Her research work for over two decades has been developing novel sensor electrodes (modified electrochemically) to detect common neurotransmitters to detecting common heavy metals Lead, Cadmium, Mercury and toxic metal Indium at low concentrations utilizing electrochemistry techniques such as cyclic voltammetry, square wave anodic stripping voltammetry, and differential pulse voltammetry. The electrochemical techniques and modified electrodes are examined further by such techniques as Scanning Electron Microscopy, Atomic Force Microscopy, Fourier Transform Infrared Spectroscopy and Raman Spectroscopy to confirm the electrode surface interactions and stability analysis of the sensor(s) developed to assist our students with a variety of analytical instrumentation techniques. She has received over 1 million dollars in external funding for her international and local educational inquiry-based science research programs at Wright State University.

### **Abstract**

The purpose of this Conversational Panel is to describe the incremental Action-Design e incremental Implementation of *Inter-National Networks and a Meta-Network for Inter-Disciplinary Communication (NmNIC), for Collaborative Learning, and Meta-Education Support. A more detailed draft will be delivered to this conversational panel in order to keep collecting data and information with regards to its Action-Design e incremental Implementation.*

A first approximation to what would be as follows. We encourage the attendees and/or panelist to apply their ***critical thinking oriented to improve this initial idea or to comment on its potential unfeasibility***

Because of the incremental approach recommended, via Action-Design and Action-Learning, the initial step in the implemetation of (NmNIC), will be through a highly flexible, versatile and diversified organization, which might be *substituted or complemented* with international multidisciplinary societies and/or associations with less flexibility/diversity and with more specific purposes and means to achieve them.

Initially, (NmNIC), will be constituted by founding individual members who might later recommend:

- organizational/institutional members,
- local members (department, divisions, etc. of larger organizations)
- national members: national associations or societies
- regional members: geographical regions which might include cities in larger countries.

The recommended architecture for (NmNIC), is a federated network of networks *where each node may be associated to both: individuals or groups*. It is estimated that the initial nodes will be basically associated with individuals and later group/organizational/institutional nodes would be gradually included. Each individual may work toward the creation of a network, hence the name of Meta-Network or Network of Networks. (NoNIC)

The International Institute of Informatics and Systemics (IIS) could provide the organizational support for the implementation and consolidation of NoNIC through the following means:

- Hosting NoNIC's meetings in the context of conferences organized by the IIS
- Including NoNIC's publications in the context of the proceedings produced by IIS and/or the Journal of Informatics and Systemics (JSCI)
- Including information about NoNIC's activities in the IIS web page and in its conferences web pages.
- Including informational material regarding NoNIC's plans and activities to be delivered at the registration desks of the conferences organized by IIS
- Distributing informational content among the IIS's members via emails.
- Using specific projects to be implemented by the IIS in a synergic way with NoNIC. An example of these projects might be the one related to the *Inter-National, Inter-Disciplinary, Integration Groups: IIIG. IIIGs might be an adequate bridge between the IIS and NoNIC*
- Identifying synergic relationships between both organizations: IIS and NoNIC
- Other means on which both organizations might agree.

As we said above, a potential *organizational bridge* between the International Institute of Informatics and Systemics (IIS) and the (NoNIC) might be the Inter-National, Interdisciplinary, and Integration Groups (IIIG).



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***Plenary Session – Wednesday March 13<sup>th</sup> 2019, 7:45 AM – 10:10 AM***



**Professor T. Grandon Gill**

**University of South Florida, USA  
College of Business  
Director of the Doctorate in Business Administration  
Editor-in-Chief of Informing Science  
Editor of the Journal of IT Education**

**Dr. Grandon Gill** holds an AB (cum laude) from *Harvard College* and an MBA (high distinction) and DBA from *Harvard Business School*. He is a professor and the Academic Director of the Doctor of Business Administration program at the *University of South Florida's Muma College of Business*. He was also recently elected president of the *Informing Science Institute*.

Dr. Gill has published more than 60 peer reviewed articles, more than 60 case studies, and has authored or edited 11 books relating to his research in the informing science transdiscipline and in the use of case studies for education and research. Over the past decade he has served as principal investigator on two grants from the National Science Foundation, completed a core faculty Fulbright in South Africa, and received the Gackowski award for his lifetime contributions to informing science research and the Ranulph Glanville award for his research activities.

**Short Abstract: “How Growing Complexity is Changing the Skills that our Students Need (and How we Need to Adapt as Educators)”**

Are we helping our students develop the right skills for participation in today’s workshop and society at large? By looking at how complexity is changing our world, the presenter will argue that much of today’s education would be a better fit with what we faced in 1960 than what our students will face in 2020. The presentation begins by looking at the nature of task complexity, which is characterized as existing in three forms:

1. *Experienced complexity*, which manifests itself in our mental and physical reactions to a task.
2. *Intrinsic complexity*, which can be assessed through the study of the problem space used to perform the task, and
3. *Extrinsic complexity*, which is driven by the relative fitness of task states and outcomes.

Based on an analysis of how these different types of complexity are evolving in today's world, it proposes a variety of sub-skills that will be valued within the broad categories of skills that employers appear to desire.

The second part of the presentation will identify potentially relevant educational approaches that were identified as part of a participatory workshop conducted early in the week. The goal is for the audience to come away with some ideas about how we can help our students better cope with complexity.



**Dr. Melissa R. Allen-Dumas**

**Oak Ridge National Laboratory, USA  
Urban Dynamics Institute and  
The Climate Change Science Institute**

**Dr. Melissa Allen-Dumas** is a Research Scientist in the Computational Sciences and Engineering Division at Oak Ridge National Laboratory, and leads the Impacts, Adaptation, and Vulnerability theme within the Climate Change Science Institute. She holds a PhD degree in Energy Science and Engineering, a MS degree in Environmental Engineering, a BME in Music Education (violin), and a private pilot license. Her expertise includes global modeling and analysis of atmospheric species transport, statistical and dynamical downscaling of various climate model output, and analysis of direct and indirect effects of climate change on electricity demand and on other national and civic critical infrastructures.

*Diana Skinner, Mezzo Soprano/Violinist contributed to the content of this Plenary Keynote Address*



Diana began violin studies at age 7 and vocal studies in college at the University of Northern Colorado. She pursued both disciplines through graduate school at the University of Texas at Austin, where she earned a Master's degree in vocal performance. Her professional career began with New York City Opera, singing in the regular chorus and performing small roles. She appeared extensively with the Brooklyn Bach Festival, New York Festival Orchestra, and Musica Hebraica. She served for a decade as vocal adjudicator for the LaGuardia High School of Performing Arts ("Fame") in Manhattan and was a consultant to the New York State Board of Education's arts program. She was a founding member of Choralfest in Denver, a group of premier professional singers and instrumentalists who performed large choral works. She appears regularly as alto soloist with the Arkansas Choral Society and members of the Arkansas Symphony, the Mendelssohn Choir of Connecticut, and Colorado's Amadeus Choir & Orchestra. She and her siblings created a non-profit organization, Amadeus Chamber Ensemble, in order to produce classical music concerts in Arkansas, Colorado, and Tennessee. Diana resides in Tennessee with her husband; their son is a

graduate of Vanderbilt University. Diana plays violin in both an amateur string quartet and flute quartet.

**Short Abstract: “Orchestrating Interdisciplinary Research”**

Just as in a world-class symphony orchestra, successful interdisciplinary scientific collaboration balances a diversity of perspectives within a common framework. In the same manner as each orchestral musician brings a distinctive voice and tone to the concert hall, each scientist brings an articulated domain of study and prescribed philosophy to a project. In any organization — musical or scientific — individual innovation and collective effort must be fully integrated in order to achieve an artistic realization or scientific discovery. The group’s conductor, or manager, must facilitate a creative, productive, and rigorous environment in which each member, individually and collectively, can thrive, achieve, and contribute.



**Professor Stefan Wolfgang Pickl**

**Universität der Bundeswehr München, Germany  
Chair of the Advisory Board of the German Society for Operations Research (GOR).  
Chair of the GOR working group “Simulation and Optimization of Complex Systems”. Foundation of COMTESSA.**

Professor Stefan Pickl studied mathematics, electrical engineering, and philosophy at TU Darmstadt and EPFL Lausanne 1987-93. Dipl.-Ing. '93, Doctorate 1998 with award. Assistant Professor at Cologne University (Dr. habil. 2005). Visiting Professor at University of New Mexico (U.S.A.), University Graz (Austria), University of California at Berkeley, Naval Postgraduate School NPS Monterey (U.S.A.). Visiting scientist at SANDIA, Los Alamos National Lab, Santa Fe Institute for Complex Systems and MIT. Associated with Centre for Information Technology and Algorithms CITA (USA), Center for Network Innovation and Experimentation CENETIX, International Best Paper Awards '03, '05, '07. Chair of the Advisory Board of the German Society for Operations Research (GOR). Chair of the GOR working group “Simulation and Optimization of Complex Systems”. Foundation of COMTESSA.

**Short Abstract: “The Duality of “Sustainable Development” and “Safety & Security”: A Comprehensive Approach for the Next Generation”**

The Sendai Framework Agenda for 2030 addresses a new kind of awareness on disaster risk reduction and resilience concepts, especially in the field of strategic management to prevent new risks and crisis. COMTESSA is focussing on this special duality. We present a comprehensive approach which is based on the fundamental TEM model. This innovative analytical approach IRIS (Integrated Reachback Information System) integrates a smart optimization framework as well as a visual analytics platform.

This IT-based attempt might also be characterized by the African quote “It takes a whole village to raise a child”. This proverb indicates that an entire community of people (“conceptual framework”) must interact “in a comprehensive way” like a metaphysical reachback unit. It was always the vision of Nagib Callaos to characterize and to understand complexity in such an holistic way. COMTESSA is one small mosaic stone in that “vision of complexity”.



### **Professor John Coffey**

**University of West Florida, USA  
Computer Science Department  
Research Scientist at Florida Institute for Human and Machine  
Cognition**

Dr. John W. Coffey holds a B.S. in Psychology from the College of William and Mary (1971), a B.S. in Systems Science (1989), an M.S. in Computer Science/Software Engineering (1992), and an Ed.D. with an emphasis in Computer Science (2000) from the University of West Florida (UWF). He was one of the first members of the Institute for Human and Machine Cognition (IHMC) and he has worked with that organization for many years. He has been in the Department of Computer Science at the University of West Florida since 1992, starting as a Lecturer and working his way up to his current rank of Professor. He has published a total of more than 100 refereed journal articles, book chapters, technical reports, and conference proceedings. His research interests include knowledge elicitation and representation, web services, and Service Oriented Architecture, advanced technology for education, and computer science education.

#### **Short Abstract: “Difficulties in Determining Data Breach Impacts”**

This talk addresses the high level of uncertainty that exists in the assessment of damage caused by data breaches. I first create context by characterizing data security and data breach impact analysis as so-called "wicked problems." Such problems are inherently complex, multifaceted, not finally solvable, and involve competing concerns among various constituencies. In the talk, I address best estimates of costs to both organizations and individuals of data breaches and elucidate the uncertainty in making such assessments. The competing concerns of organizations versus individuals when data breaches occur are described. For instance, organizations have strong incentives to disclose as little as possible regarding data breaches they incur, whereas individuals want to know as much as possible about the data breach and its implications. The talk addresses inherent difficulties in digital forensics, which are exacerbated by the rapidly evolving field of digital anti-forensics. It elucidates the lack of standardized federal data breach reporting requirements in the United States and contrasts this state of affairs with the impacts of the European Union's "General Data Protection Regulation," (GDPR). The talk concludes with the viewpoint that organizations cannot provide assurances that individuals' data will be kept safe and with a discussion of various safeguards individuals may employ to protect themselves.

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**Plenary Session – Wednesday March 13<sup>th</sup> 2019, 1:00 PM – 3:15 PM**



**Professor Donald Ropes**

**Inholland University of Applied Sciences, Netherlands**  
**Business Research Centre**  
**Research line: Learning and Development in Organisations**

Donald Ropes is Professor of Learning and Development in Organisations at Inholland University of Applied Sciences. His research is on learning in complex environments, specifically how we can help people and organisations to become responsive: able to absorb shocks, adapt and thrive in new situations and look for challenges that can be turned into opportunities. For more than ten years, Professor Ropes has been working on advancing Design Science Research as a way to contribute to organisations' development while at the same time expanding organisational learning theory.

**Short Abstract: “*Transdisciplinary Research: Bridging the Great Divide between Academic Knowledge Production and Societal Knowledge Requests*”**

The goal of this presentation is to present the concept of transdisciplinary research as an approach that is particularly suited for assuring the supply and demand of knowledge between universities and the rest of society is effectively met. Transdisciplinary research is a process that organizes collaborative learning and knowledge production between academics from different disciplines together with expert practitioners working in industry or government resulting in new knowledge useful for both society and science. Thus, transdisciplinary research tries to bridge the great divide between science and practice.

I start the presentation by explaining what the actual gap is between the type of knowledge society needs and what it gets from academics. I then go on to explain why the gap exists. Following this, I discuss the foundations of transdisciplinary research, including its core concerns, its main characteristics and the processes involved in it. Once we have a clear understanding of what transdisciplinary research is, how it works and why it is used to bridge the gap, I present a case study of a transdisciplinary project we are working on.

I finish the presentation with a short discussion on what it takes to work in transdisciplinary research projects and how we can help our students to gain the needed competencies for doing so - a most important task because higher education has a crucial role in assuring sustainable development.





## **Dr. Jalal Nouri**

**Stockholm University, Sweden  
Department of Computer and Systems Sciences  
Coordinator of the Learning Analytics Group**

Jalal Nouri is an associate professor at the Department of Computer and Systems Sciences at Stockholm University. Nouri have conducted research on technology-enhanced learning and published over 60 articles in international conferences and journals on topics such as digital competence, programming didactics, 21st century skills, mobile learning and learning analytics. His dissertation was awarded the year's scientific achievement at Stockholm University. Nouri is today the coordinator of a research group of Learning Analytics and AI for Education at Stockholm University, and editor-in-chief of the International Journal of Learning analytics and Artificial Intelligence for Education.

### **Short Abstract “*Learning Analytics and Artificial intelligence - What Type of Research Is Conducted, Where Are We Going and What Will Be the Impact for Education?*”**

Today, learning is taking place in digital environments in which students leave large amounts of digital traces of their learning activities. The availability of these massive data sets in combination with powerful methods for data analysis (data science and machine learning) creates new opportunities for an in-depth study of learning. Therefore, in recent years we have seen the emergence of the research field of learning analytics (LA) that contributed to increased understanding of learning and to actual impact on practices. This keynote presents an overview of what have been and is currently done in the field of LA, and what can be expected in the future.



## **Dr. Risa Blair**

**Purdue University Global, USA  
eLearning Instructional Designer  
Education Management  
Instructional Associates  
Director of HR and Operations**

**Dr Risa Blair** is Passionate leader and trainer with extensive experience in higher education and corporate settings, including project management, curriculum development and delivery for face-to-face and online settings. Exceptional skills in facilitating content delivery to meet the needs of the client. She is a Strong proponent of utilizing real world experience and technology to promote and reinforce learning, as well as to meet required outcomes. Easily able to deliver technical content to non-technical audiences. Quality Matters trained online course reviewer.

**Short Abstract: “Creative Communication Strategies for Multigenerational Students.”**

With the mix of generations in the classroom, we are facing multiple wins and challenges. The older students are more mature, but many are anxious about returning to school, especially in the online environment. Our younger students are quite tech savvy, yet don't necessarily transfer their tech skills to the online classroom. They also potentially lack identity in terms of their studies and experience.

Many of our students are in a rush! They don't want to read. They prefer to scan content – a few bullet points rather than long paragraphs, or summaries of articles rather than full articles. Although they are tech savvy, they want the personal touch in our classes. They are eager to learn.

Real-world learning – that's the key. Connect the content to their real-world life situations and future opportunities. They want to be highly engaged in the class in our discussions and seminars. Information needs to be relevant. Tap into our learners. Understand their needs and expectations. Deliver and reinforce the content their way! For instance, instead of a long page of text, you can use a video. Be flexible. If a student branches off in a highly relevant area in the discussion about which he or she is passionate, go with it.

Be supportive. Be respectful. Keep the bar high and guide students along the way to reach the bar. Get students excited. Tap into their different learning modalities. Work to reinforce concepts across channels – discussions, emails, voice, video.

This session will focus on the different generations and technology tools to help promote communication in the online classroom. Provide the students of the different generations the technology they appreciate, so they can not only master the content, but also have it their way and master the content. Acknowledge and support their learning styles and preferences.



**Dr. Nicola Fabiano**

**Studio Legale Fabiano , Italy**

**Founder and CEO**

**President of the first San Marino Data Protection Authority.**

**President of the Centre for Informatics and Forensic Innovation (CINFOR)**

Nicola Fabiano, Lawyer, Council of Italian High Court, Civil Law Specialist, expert and advisor for Data Protection, Privacy and Cyber Security, Independent researcher, Innovator. Nicola is a frequent speaker at international conferences on data protection, privacy, Cyber Security, IoT, Blockchain, publishing articles, essays, books, papers. In 1994 Nicola founded [Studio Legale Fabiano](#). From November 2017 to April 2018, Government advisor of the Republic of San Marino for the drafting of the data protection legislation. On January 2019, Nicola has been appointed as President of the first San

Marino Data Protection Authority. Member of the "IEEE SA P7007 Ontological Standard for Ethically Driven Robotics and Automation Systems Working Group" and chair of the "Data Privacy and Protection" sub-group. Member of the Working Group of the FIIF (Fondazione Italiana per l'Innovazione Forense – Italian Foundation for the Forensic Innovation) of the Italian CNF (Consiglio Nazionale Forense – Italian National Bar Council). President of the Centre for informatics and forensic innovation – CINFOR.

**Short Abstract: “*Intelligent Systems, Ethics and Data Protection*”**

Nowadays technicians cannot work without legal references. The intervention has the purpose of proposing some possible key points in the relationship among Intelligent Systems, Ethics and Data Protection. It is crucial to raise awareness of the value of personal data because belonging to a natural person. Paying attention to Ethics and Data Protection should be the correct pathway to address in practice the value of human dignity. How are technical solutions developed? What is the users' approach to technical solutions? Are users aware?



**General Framework and Plenary Keynote Speakers of the Collocated Conferences**  
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*Novena Conferencia Iberoamericana de Complejidad, Informática y Cibernética: CICIC 2019*

**Plenary Session – Thursday, March 14<sup>th</sup> 2019, 7:45 AM – 10:10 AM**



**Dr. Lorayne Robertson**

**University of Ontario Institute of Technology (UOIT), Canada**  
**Former Assistant Dean in the Faculty of Education**  
**Former Director of the Graduate Programs in Education**

**Dr. Lorayne Robertson**, teaches graduate and undergraduate courses in digital pedagogies, equity, leadership, and policy in the Faculty of Education at the University of Ontario Institute of Technology, Canada. She specializes in online course design, program design, and quality assurance. Other research interests include investigations of the student experience and instructor role in polysynchronous online environments with a particular focus on digital technologies and assistive technologies *at the point of instruction* in applied settings such as schools, colleges, and higher education. Dr. Robertson is a former school principal, school district superintendent, and education officer for the Ministry of Education, Ontario

**Short Abstract “*Digital Literacies as an Emerging Imperative in Higher Education.*”**

Definitions of digital literacies abound in the literature, but much of the focus has been on the technological advances associated with online learning and the ubiquity of access to information. As a result, less attention has been directed toward aspects of the ethos associated with new literacies, such as the personalization of education, the design of open, collaborative learning spaces, and the need for scholarly research that is more flexible and integrated in its design. Today’s doctoral students need to be strong communicators who can navigate in spaces characterized by cross-disciplinary, cross-generational and international discourses. These new literacy issues in doctoral programs are not minor, but are linked to the redefinition of the core work associated with doctoral education. This presentation examines some of the pillars of doctoral education, such as a focus on fields, and program elements such as comprehensive exams, and reconsiders these requirements through the lens of new literacies.



**Prof. Dr.-Ing. Alexandru Soceanu**

**Munich University of Applied Sciences, Germany  
Department of Computer Science and Mathematics  
Coordinator of the EU project: "Distributed Online Campus on  
ICT Security"**

Professor Alexandru Soceanu has a teaching experience for over 25 years in the areas of computer networks, network management, network security, Internet of Things (IoT). He combines Research and Consulting in future computer networks, network security management, eHealth security, IoT and he has been coordinating a series of international European ERASMUS projects such as: "Distributed Online Campus on ICT Security-DECAMP": partnership of 6 EU Universities, offering each, an online hands on course on ICT security of a specific application area.

**Short Abstract:** *"How to Prepare Future Professionals for New Generation Network Architectures."*

Over the last decade, computer network researchers have taken advantage of the virtualization techniques and developed revolutionary technologies to allow network architecture to operate independently from its numerous hardware-based assets. At the same time, the much-needed protection against cyber security attacks has accelerated the development of new virtualized technologies.

This keynote speech focuses on new technologies for building network architectures (Software-Defined Anything) and New Generation virtualized protection tools (NGFW, NGIPS, NGSandbox). Munich University's hands-on virtual lab to teach online and face-to-face new technologies will be presented as an academic example of how to prepare future professionals for the New Generation Computer Networks.



**Dr. Timothy F. Slaper**

**Indiana University, USA  
Kelley School of Business  
Indiana Business Research Center  
Research Director**

**Dr. Slaper** {slay-per} leads a research team engaged in industry and workforce analysis, regional economic growth and resiliency, measuring innovation, trade and foreign investment analysis, and measuring educational and training program performance. Timothy is the Principal Investigator for a U.S. Department of Commerce project on regional economic development. National in scope, the project will build a county-based data set and web tool for economic development

practitioners, as well as policymakers and researchers, to assess a region's innovative capacity, resilience and economic performance.

All the work that Timothy oversees puts analytical tools and practical research into the hands of economic development practitioners to help them address the challenges of economic development in today's rapidly changing world.

**Short Abstract: “*Today's Challenges and Opportunities of Measuring Entrepreneurship – E-ship*”**

The Kauffmann Foundation and academic researchers alike have bemoaned the decline in business formation and E-ship in recent years. E-ship and innovation are considered major drivers of economic prosperity and growth. Is E-ship in decline and why? Is traditional measurement missing something?

Definition and measurement go hand in hand. How do we define E-Ship? Is it only motivated by opportunities in the marketplace? Is it motivated by the need of the entrepreneur to put food on the table? Does this matter? Is everyone with a side hustle an entrepreneur? A Lyft driver? Weekend wedding photographer? Are gig workers future entrepreneurs? How long do entrepreneurs retain their title as an entrepreneur? Is Bill Gates still an entrepreneur?

We review the official measures and sources of E-ship, from Census establishment counts to surveys (and the fact that response rates are falling). We review new sources and methods to find E-ship signals, from web-behavior to now-casting using Yelp to using Getty images and credit card transactions. We consider using internet archives – the Wayback Machine – for signals about company starts, closings and growth. We also highlight the role social media can play in tracking regional E-ship interest and networks. Finally, we outline an E-ship ecosystem modeling and data collection approach using complex adaptive systems, agent-based modeling and network analysis.



**Dr. Pawel Poszytek**

**Foundation for the Development of the Education System, Poland  
General Director  
Member of working groups of the European Commission and the  
Ministry of National Education of Poland.**

**Paweł Poszytek, PhD**, Director General of the Polish National Agency of Erasmus+ Programme. Member of several working groups by the European Commission and the Ministry of National Education of the Republic of Poland, coordinator of the Country profile Project implemented by the Council of Europe. Reviewer of the national core curriculum in foreign language teaching in 2008 and co-author of 2016/2017 curriculum update. Former member of the executive board of the European Association of Language Teaching and Assessment. Former coordinator of Lingua, European Language Label and eTwinning programmes in Poland and member of the board of the Polish National Agency

of Lifelong Learning Programme. Currently, general director of the Foundation for the Development of Education System – Polish National Agency for European Union;s educational programmes.

**Short Abstract: “Competences 4.0 – How to Educate People Today to Live and Work in the World of Tomorrow?”**

**The future of work:** Demographic change, globalization and technological progress are three key trends that are very likely to affect the quality and quantity of lives and jobs in the next 20 - 30 years.

- **Demographic change**  
Most of the developed countries will undergo a significant demographic change in the next decades. A sharp decline in the share of working age population is expected for example in Japan (-28%, -23% in Germany and Italy), while some countries expect a significant increase in the working-age population (+41% in Saudi Arabia, +33% in India, + 27% in Australia). Countries with ageing population will experience a shortage of skilled and qualified labour force, as large cohorts will retire and disappear from labour market, which will also pose a problem for both pension and health care system. This will be reflected in the economy, which is likely to relocate its labour and resources from durable goods (cars, TVs) to services (health care, elderly people care). At the same time countries with younger and growing workforce, an opposite trend will be observed, with the expansion of the middle class and urbanization processes.
- **Globalization**  
Trade has a growing share in the GDP of the developed countries, which makes the global economy integrated to a unprecedented level. The rapid fall of costs of communication and transportation has allowed for the integration of goods, services and markets and accelerated the pace of dissemination of innovations and technological progress. Global markets are thus globally interconnected, resulting, more than ever before, in “butterfly effect”.
- **Technological progress**  
An increasing number of tasks and operations performed until now by humans is possible to be automated, especially given the rapid development of big data, artificial intelligence and the Internet of things, accompanied by ever-increasing computing power.

The three above-mentioned trends are more than likely to influence the education and work-related values of the 21<sup>st</sup> century societies, not only in terms of goods and services they demand, but also in their attitudes towards work. The work might shift from hourly-regulated to task-oriented, which could have a positive influence on work-life balance and health of the employees. At the same time, the place of work might change as well, as more and more tasks will be possible to be performed remotely, for example from the employee household. As a result, the boundary between “work time” and “private or family time” will slowly disappear and the idea of work-life balance might become “work-life integration”.

**Skills and competences:** Governments will need to ensure that workers are equipped with the right type of skills to navigate successfully through an ever-changing, technology-rich work environment. This will require high-quality initial education and training, but also good skills

assessment and anticipation systems, the right types of incentives for individuals to invest in those skills most needed in the labour market, and the provision of effective, up-to-date and tailored information, advice and guidance. It will also require modern systems of lifelong learning to help workers adapt and update their skills over the course of their career

Two types of skills are likely to be particularly important in the future. First, with the disappearance of routine tasks, growing emphasis will be placed on skills which are more difficult to automate. In particular, there is evidence that the labour market is increasingly rewarding soft skills such as the ability to communicate, work in teams, lead, solve problems and self-organise (e.g. Deming, 2015). Second, the importance of digital skills is increasing. While the demand for ICT specialist skills has been growing fast, the existing evidence does not suggest that major shortages are likely to arise. However, there is much more concern about individuals' ICT generic skills, such as the ability to use communication and information search or office productivity software. Here, existing evidence suggests a significant mismatch between the demand and supply of skills (OECD, 2016d). Moreover, the concept of lifelong learning is worth stressing and further development. Workers will not gain job-related knowledge only at school or university. More and more often, they will acquire new skills and competences in the non-formal and informal education as well as at their place of work. Companies could therefore become also hubs of knowledge and take over the role previously reserved to educational institutions.

## **CICIC 2019 Plenary Session (In Spanish)**

**The 9<sup>th</sup> Ibero-American Conference on Complexity, Informatics and Cybernetics**  
*Novena Conferencia Iberoamericana de Complejidad, Informática y Cibernética: CICIC 2019*  
***Sesión Plenaria Participativa – Jueves 14 de marzo, 2019, 10:10 AM – 12:10 PM***



**Dr. Nagib Callaos**

**Presidente del International Institute of Informatics and Systemic, USA**

**Ex-Decano de Investigación y Desarrollo de la Universidad Simón Bolívar, Venezuela, Editor-en-Jefe Fundador de las Revistas Journal of Systemics, Cybernetics and Informatics y Revista Ibero-Americana de Sistemas, Cibernética e Informática**

**El Dr. Callaos** ha sido profesor por más de 40 años y durante 30 años ha fundado organizaciones que relacionan la universidad con la industria, la investigación con la consultoría, la investigación con la innovación todo lo cual ha requerido de investigación y comunicación interdisciplinarias. La mayoría de esas organizaciones (universitarias y empresariales) se han mantenido operativas por 15-30 años, y aún se mantienen activas. En los últimos 24 años se ha dedicado casi a tiempo completo a fomentar la comunicación interdisciplinaria.

**Resumen Corto: “Relaciones Sistémico-Cibernéticas entre Disciplinaridad e Inter-Disciplinaridad.”**

Es evidente que no puede haber inter-disciplinaridad sin disciplinas. Lo que no parece ser evidente es que la Investigación, Educación y Comunicación Inter-Disciplinaria son necesarias para 1) resolver problemas de la vida real, 2) subir el nivel *educativo* de manera que no se reduzca a la *instrucción* disciplinaria, 3) evitar el posible *incesto intra-disciplinario*, 4) dar soporte a la preparación de estudiantes y profesores para acelerar el desarrollo personal, social y nacional de los países en vías de desarrollo



**Dr. Jacinto Eloy Puig Portal**

**Universidad de los Andes, Colombia,  
Facultad de Matemática y Computación  
Departamento de Matemáticas**

Para el Dr. Jacinto Eloy Puig Portal toda obra de arte tiene un punto de equilibrio entre proporciones y medidas, las cuales siempre tienen una interpretación numérica. El Dr. Puig Portal es matemático de la Universidad de la Habana, doctor en Pedagogía de la Universidad

Pedagógica Estatal de Moscú y docente de matemáticas de la Universidad de los Andes. Desarrolló la principal conferencia del tercer Festival de Matemáticas: Nortemática. Con su exposición ‘Geometría y matemáticas en las obras de Escher’ Puig Portal se encargó de potenciar la creatividad de los asistentes, a través de ‘pincelazos’ interpretativos del trabajo artístico del holandés Maurits Cornelis Escher y los fundamentos geométricos euclidianos y fractales. Durante su presentación destacó primero las obras de artistas y genios de la historia, como Mozart, Einstein y Davinci, para explicar que “en ocasiones” cuando una persona enfrenta un proceso creativo tiene que negar dogmas, lo cual conlleva a fuertes oposiciones. Escher, por ejemplo, fue primero admirado por matemáticos y científicos antes de ganar el reconocimiento de los críticos de arte. Con ello queda en evidencia los conocimientos y el interés inter-disciplinario del Dr. Eloy Puig

### **Resumen Corto: “Causas que Frenan la Comunicación Inter-Disciplinaria.”**

“La delimitación del objeto de investigación en campos y temas muy especializados, condujo a un aislamiento entre los científicos. Este modelo se reproduce en la estructura y funcionamiento de las universidades. La presencia de los problemas globales, ha acentuado la necesidad de la comunicación interdisciplinaria, sobre todo en la academia, donde se forman los contingentes de profesionales. Con el surgimiento de ciencias múltiples o híbridas, que delimitan su objeto de estudio precisamente en las fronteras de las disciplinas más tradicionales, se diseñan nuevas carreras, pero son pocos los espacios de diálogo interdisciplinario, se reduce lo nuevo al modelo preexistente.



### **Dr. Paulo Batista**

**Universidade de Évora, Portugal**

**Ciência da Informação**

**Centro Interdisciplinar de História, Culturas e Sociedades**

**Doutor Paulo Batista: Coordenador científico:** AML – Arquivo Municipal de Lisboa CIDEHUS.UÉ – Centro Interdisciplinar de História, Culturas e Sociedades da Universidade de Évora FCT – Fundação para a Ciência e Tecnologia Investigador do CIDEHUS– Centro Interdisciplinar de História, Culturas e Sociedades da Universidade de Évora. Doutor em Documentación (Universidad de Alcalá – UAH). Mestre em Ciências da Informação e da Documentação – variante de Arquivística (Faculdade de Ciências Sociais e Humanas-Universidade Nova de Lisboa – FCSH-UNL). Máster em Documentación (UAH). Diploma de Estudios Avanzados de Doctorado em Bibliografía y Documentación Retrospectiva (UAH). Pós-graduado em Direito da Sociedade da Informação (Faculdade de Direito da Universidade de Lisboa) e em Ciências da Informação e da Documentação – variantes de Biblioteconomia e Arquivística (FCSH-UNL). Especialização em Boas Práticas em Gestão Patrimonial e em Ciências da Informação e da Documentação – variante de Arquivística(FCSH-UNL). Licenciado em História (Faculdade de Letras da Universidade de Lisboa). Técnico superior no Arquivo Municipal de Lisboa e formador no Município de Lisboa. Foi docente no Mestrado de Ciências da Informação e da Documentação da FCSH-UNL, técnico superior no Instituto Português do Património Cultural, no Instituto



Português do Património Arquitectónico / Palácio Nacional de Queluz e no Instituto dos Arquivos Nacionais / Torre do Tombo, e investigador no Centro de Estudos de História e Cartografia Antiga do Instituto de Investigação Científica Tropical. Autor de diversas publicações em revistas da especialidade portuguesas e estrangeiras, em livros de coordenação diversa e artigos científicos apresentados em congressos nacionais e internacionais.

**Resumo breve: “*Interdisciplinaridade e Ciências da Informação.*”**

A Ciência da Informação (CI) é o exemplo perfeito de como a comunicação interdisciplinar foi decisiva para se afirmar como ciência e superar perspectivas disciplinares redutoras/impeditivas da explicação do objeto de estudo. Seu corpo central sustenta-se no legado das disciplinas que a antecederam: Arquivística; Biblioteconomia/Documentação; Sistemas de Informação. O campo científico da CI envolve, ainda, áreas próximas: Ciências da Humanas e Sociais; Ciências Exatas e Naturais; Estudos Literários e Artísticos.

Conclusão: O campo científico e de atuação da CI abarca áreas ativamente interrelacionadas, devendo ser fomentada pela permanentemente receptividade a potenciais contributos enriquecedores da sua área de estudo

**Resumen Breve: “*Inter-Disciplinaridad y Ciencias de la Información.*”**

La Ciencia de la Información (CI) es el ejemplo perfecto de cómo la comunicación interdisciplinaria La misma fue decisiva para afirmarse como ciencia y superar perspectivas disciplinarias reductoras / impeditivas de la explicación del objeto de estudio. Su cuerpo central se sustenta en el legado de las disciplinas que la precedieron: Archivística; Biblioteca / Documentación; Sistemas de Información. El campo científico de la CI involucra, además, áreas cercanas: Ciencias de las Humanidades y Social; Ciencias Exactas y Naturales; Estudios Literarios y Artísticos.

Conclusión: El campo científico y de actuación de la CI abarca áreas ativamente interrelacionadas, debiendo ser fomentada por la permanentemente receptividad a potenciales contribuciones enriquecedoras de su área de estudio.



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*Novena Conferencia Iberoamericana de Complejidad, Informática y Cibernética: CICIC 2019*

***Plenary Session – Thursday, March 14<sup>th</sup> 2019, 1:00 PM – 3:15 PM***

**Professor Mária Csernoch**



**University of Debrecen, Hungary  
Faculty of Informatics  
Mathematics and Computing**

**Dr. Mária Csernoch** associate professor at the Department of Computer Science and Library and Information Science, Faculty of Informatics, University of Debrecen, Hungary. At present, she work for the Faculty of Informatics, University of Debrecen, Hungary, where she started her academic carrier with twenty-five years of teaching experience in high school. She has teaching degrees in Mathematics, Descriptive Geometry, Informatics, English and a BSc degree in Computer Programming, a PhD in Mathematics and Computer Sciences, and a Habilitation in Applied Linguistics. Recently, she focus on the Didactics of Informatics, specialized on the theoretical background and practice of developing computer problem-solving, computational thinking, algorithmic, and knowledge-transfer skills and abilities in end-user computing.

**Short Abstract: “*Knowledge-Transfer in End-User Computing.*”**

In the most widely accepted approaches end-user computing is interface navigation in clearly distinguished office applications. However, it is proved that these approaches lead to erroneous documents, time consuming and frustrating document management on the part of authors and co-authors and require demanding comprehending skills on the part of the audience. In the present paper we argue that this misconception can be resolved by redefining end-user education and activities by putting the knowledge-transfer approach in the focus



**Professor Adream Blair**

**University of Wisconsin, USA  
College of Design, Architecture, Art and Urban Planning  
Co-Area Head, Design & Visual Communication  
Associate Professor, of Design & Visual Communication and  
Digital Fabrication & Design**

**Adream Blair** is an Associate Professor of Art and Design at the University of Wisconsin-Milwaukee where she develops cross-disciplinary design research initiatives and curricula for the Design and Visual Communication

department. She teaches participatory research methodologies and principles of universal design in a cross-disciplinary classroom. Most recently, Adream has focused on bringing new and emerging technologies to the classroom to solve complex problems.

**Short Abstract: “*The Participatory Design Classroom: Using Participatory Research Methods in the Design Classroom*”**

Designers (and future designers) face increasingly complex and global challenges in the workplace. While a high value is placed on innovation and collaborative, the preparation students receive in the classroom does not always provide them with the intellectual framework, the range of skills, the hands-on experiences or the leadership opportunities they will need to function as creative thinkers and versatile problem solvers in a global collaborative work environment. Participatory research plays an important role in the design classroom as an iterative process that balances collaborative enquiry and problem solving, critical reflection and self-evaluation. Herein lies the underlying theme of this talk: examples and ideas from using participatory and interdisciplinary research and teaching and learning spaces that empower the student.



**Dr. Giti Javidi**

**University of South Florida, USA  
Associate Professor of Information Technology and Cyber-Security,  
Former Professor of Computer Science, Virginia State**

**Dr. Giti Javidi** is an Associate Professor of Information Technology and Cybersecurity at University of South Florida and a former Professor of Computer Science at Virginia State University. As a leader in STEM education research, she has received several prestigious awards, including 2017 Women of Influence and 2018 Women in Leadership and Philanthropy award for her research. Dr. Javidi has been featured in Harold Tribune, Sarasota Magazine, Florida High Tech Corridor and several other venues.

**Short Abstract: “*Understanding Deep Web and its Impact on Cybersecurity*”**

The Internet is massive. On the surface, there is "visible" Internet, but below the surface is the “Deep Web”, which has created space for underground cybercriminals. Nowadays, new technology such as encryption and the anonymization browser software have made it possible for anyone to dive deep into web. Some users use it to bypass local restrictions and access TV, download movies or pirated music. But some go deeper to take advantage of this online anonymity for illegal activities such as controlled substance trading, human trafficking, cyberattack, illegal financial transactions, and identity theft among many other activities. This talk touches on the Deep Web’s global impact on cybersecurity and our society, and offers a forecast on how it could evolve over the next few years. The deep Web has the potential to host

progressively high number of malicious services and activities. This talk will discuss the impact while shedding light on existing rules and regulations for governing Internet.



**Dr. Suzanne Lunsford**

**Wright State University, USA  
Professor of Chemistry**

**Dr. Suzanne Lunsford** is professor at Wright State University and is an electrochemist and an internationally established chemical educator. She has been working with colleagues from *international* universities on how to integrate interdisciplinary science labs to meet the needs of the 21<sup>st</sup> century. Her research work for over two decades has been developing novel sensor electrodes (modified electrochemically) to detect common neurotransmitters to detecting common heavy metals Lead, Cadmium, Mercury and toxic metal Indium at low concentrations utilizing electrochemistry techniques such as cyclic voltammetry, square wave anodic stripping voltammetry, and differential pulse voltammetry. The electrochemical techniques and modified electrodes are examined further by such techniques as Scanning Electron Microscopy, Atomic Force Microscopy, Fourier Transform Infrared Spectroscopy and Raman Spectroscopy to confirm the electrode surface interactions and stability analysis of the sensor(s) developed to assist our students with a variety of analytical instrumentation techniques. She has received over 1 million dollars in external funding for her international and local educational inquiry-based science research programs at Wright State University.

**Short Abstract: “*Integration of Inquiry-Based Learning with Real-World Problem Solving*”**

With the large experience Dr. Suzanne Lunsford is relating and integrating research, education and real life solving she will present 1) a systemic *perspective of academic activities* and 2) she will show how the level of education may be increased related her research and real life problem solving in same educational process of her students. In this way, she will show that instructional processes, which are *necessary* educational means, might not be *sufficient* for an adequate level of education. Research may be taken as a means for inquiry-based learning, especially if it is oriented to solve real life problems.

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***Plenary Session – Friday, March 15<sup>th</sup> 2019, 7:45 AM – 10:10 AM***



**Professor Detlev Doherr**

**University of Applied Sciences, Germany**  
**Dean of the Bachelor Degree Programs**  
**Head of the Institute of Continuing Academic Education**  
**Director of the Steinbeis Transfer Center of Information Technologies, Offenburg**

**Dr. Detlev Doherr** is Professor in Informatics and Geoinformatics of the University of Applied Sciences Offenburg, Germany, since 1990. He received the degrees of diploma and Dr. rer. nat. from the University of Göttingen, Germany in 1983. After an employment at the German Rock salt and Potash industry, where he developed a Geographical Information System for mining and exploration together with IBM, he serves as Professor in Offenburg beginning in 1990. In 1992 he founded the Steinbeis-Transfer Center of Information Technology in Offenburg, which is part of the German Steinbeis- Stiftung. Since 2001 he is working in the fields of digital libraries, Internet portals and virtual environments. He has more than 20 years experiences in developing of Internet based information systems combined with knowledge bases and artificial intelligence. His current interests include knowledge based computing, information technology, and history of natural sciences.

**Short Abstract: “*Humboldt's Worldview on the Test Bench of Artificial Intelligence.*”**

Our idea of nature is mainly based on the research of the German scientist Alexander von Humboldt, who carefully examined the complexity and diversity of nature and saw all elements integrated into natural processes, in which not a single element can be found isolated. His view of nature has become much more detailed through the knowledge of phenomena and natural processes, resulting in a more precise but largely unchanged view of nature, shaped by Humboldt.

Today's technological progress and the artificial intelligence of highly developed computer systems disrupt this view and will change the established world view through a new, unprecedented interaction between man and machine. Therefore, we need digital axioms and comprehensive rules and laws for such autonomous systems that determine human interaction between cybernetic systems and biological individuals. This digital humanism should encompass our relationship to nature, our dealings with the complexity and diversity of nature, and the technological influences on society in order to avoid technical colonialism through supercomputers.



## **Professor Em. Harry Hall**

**Indiana Wesleyan University, USA  
College of Adult and Professional Studies, Professor Emeritus  
Associate Dean for Institutional Effectiveness  
Director of Academic Planning and Evaluation**

**Dr. Harry Hall** earned a BA in psychology from Augusta State University, a master's degree in school administration, and doctorate in educational leadership from the University of North Carolina at Charlotte. In 2001 Dr. Hall joined the faculty at Indiana Wesleyan University after a 10 year career as a public school administrator (principal and assistant principal) and teacher in North Carolina. Before going into teaching, Dr. Hall completed a 28-year career in the Army as a pilot and combat arms officer that included two tours of duty in Vietnam. While at IWU Dr. Hall has developed online programs, virtual portfolios, and numerous instructional innovations. He has presented at regional, national, and international conferences on topics ranging from electronic portfolios and assessment systems to developing differentiated learning activities. He has conducted numerous research projects, most recently on the impact of adult literacy on success in higher education.

### **Short Abstract: “*Quality Instruction and Learning, Is It Taking Place in Our Classrooms?*”**

Is learning taking place in our college classrooms and online learning spaces? Are students reaching their academic and social learning potential? I propose to you that learning is our business and our responsibility. We need to step up to it. Efficacious teachers feel responsible for their students' learning. Learning leaders assume responsibility for the quality of instruction and student learning. Institutions hold their learning leaders accountable and assume responsibility for defining the overall learning and social outcomes for their students and monitoring their progress toward those ends. Students are responsible and accountable for assuming constructive learning profiles: being in class, following instructions, actively participating in learning activities, and having a positive attitude. This sounds so simple but we struggle to achieve those essential learning outcomes.



## **Dr. Penelopia Iancu**

**Université de Moncton, Canada  
Faculty of arts and social sciences, School of Social Work  
Vice-president of the Interdisciplinary Research Group on  
Children and Youth Mental Health**

**Dr. Penelopia Iancu** is doing research on the following topics: children and youth mental health, family intervention, interprofessional collaboration and integrated service delivery, complex problem-solving using creativity, ethical issues of documentation and social work education. She focuses on qualitative and mixed research and interdisciplinarity. She is Vice-president of the Interdisciplinary Research Group on Children and Youth Mental Health, from Université de Moncton, Canada.



**Short Abstract: “Interdisciplinarity and Complex Problem Solving: Implications for Education”**

Researchers’ interest for complex problem solving has increased because of observations showing that real-life problems are often complex, ill-defined and non-linear; problem-solving skills used to solve well-defined problems are not always transferable to complex problems; traditional strategies are less efficient when applied to complex problem solving (Funke, 2010; Jonassen, 2003). These problems are characterized by structural complexity, non-linear and unpredictable dynamics and non-transparency (Funke, 2010; Quesada, Kintsch & Gomez, 2005). Implications for education include, among other things, changing the ways educators prepare students to solve complex problems and providing more opportunities for students to solve these problems collaboratively in interdisciplinary settings.



**Professor Madelyn Flammia**

**University of Central Florida, USA  
International Technical Communications  
Vice President, International Policy and Analysis Center  
2010 UCF SOTL Award2  
009 UCF Internationalization Award**

**Dr. Madelyn Flammia** is a Professor of English at the University of Central Florida in Orlando, Florida. Her research interests include international technical communication, global citizenship, and virtual teams. She is the co-author of *Virtual Teams in Higher Education: A Handbook for Students and Teachers* and the co-editor of *Teaching and Training for Global Engineering: Perspectives on Culture and Professional Communication Practices*. She has given presentations on intercultural communication and on global virtual teams at professional conferences and for corporate audiences. She received the 2017 Society for Technical Communication Jay R. Gould Award for Excellence in Teaching Technical Communication.



**Dr. Houman A. Sadri**

**University of Central Florida, USA  
Associate Professor  
of International Relations  
President, International Policy and Analysis Center (IPAC)  
2016 Medal of the 20 Anniversary of APK, Kazakhstan Embassy  
2011 UCF Scholarship of Teaching and Learning (SoTL) Award**

**Dr. Houman A. Sadri** is a professor of International Relations, the Coordinator of the Model U.N. Program, and a U.S. Government consultant. He is the author of 4 books (including *Intercultural Communication* with Madelyn Flammia), 70 articles, 15 book chapters, and about 100 conference papers. Scholarship of Teaching and Learning (SoTL) is one Sadri’s research areas, for which, he has presented and published many articles. Sadri’s projects

are funded by U.S. State Department, U.S. Fulbright Association, International Studies Association, American Political Science Association to name a few. He is often interviewed by national and international media.

**Short Abstract: “*Ethical and Social Justice Issues in Internationalization*”**

The presenters will begin by discussing the challenges associated with intercultural ethics. Then they will go on to talk about related social justice issues and the challenge of incorporating these issues in our internationalization efforts. Next they will examine the way that many current efforts toward internationalization of the curriculum in U.S. colleges and universities may be heavily influenced by a Western perspective that does not adequately address ethical and social justice issues. Finally, the presenters will offer suggestions for addressing these challenges drawn both from relevant scholarship and from their own experience working to internationalize the curriculum.

Specifically, the presentation will cover these points:

- Challenges inherent in intercultural ethics
- Universal and Relative Approaches to ethical issues
- Contextual Relativism
- Social justice issues in internationalization
- Western and Non-Western perspectives
- Methods for overcoming a Western bias
- Strategies for ethical internationalization efforts

The presenters will conclude by offering strategies for engaging in ethical internationalization efforts by drawing on scholarly research and on their own experience.

**General Framework and Plenary Keynote Speakers of the Collocated Conferences**  
The 10<sup>th</sup> International Multi-Conference on Complexity, Informatics and Cybernetics: IMCIC 2019  
The 10<sup>th</sup> International Conference on Society and Information Technologies: ICSIT 2019  
The 9<sup>th</sup> Ibero-American Conference on Complexity, Informatics and Cybernetics  
*Novena Conferencia Iberoamericana de Complejidad, Informática y Cibernética: CICIC 2019*

**Participatory Plenary Session – Friday, March 14<sup>th</sup> 2019, 1:00 PM – 3:15 PM**

**Participatory Plenary Session** of all Collocated Events on *Interdisciplinary Communication*. The format of this session is as a participative panel, i.e. there will initial speakers, on the same topic and the attendees can ask, any speaker at any moment for making an interruption to ask any question or to add a comment. Each attendee is maybe a panelist in the sense than he or she can answer any question made by any other attendees.

Co-Chairs and initial speakers: **Professor T. Grandon Gill**, University of South Florida, USA, **Professor Donald Ropes**. Inholland University of Applied Sciences, **Dr. Penelopia Iancu**, Université de Moncton, Canada, and **Dr. Nagib Callaos**, International Institute of Informatics and Systemics (IIS). USA



**Professor T. Grandon Gill**

**University of South Florida, USA**  
**College of Business**  
**Director of the Doctorate in Business Administration**  
**Editor-in-Chief of Informing Science**  
**Editor of the Journal of IT Education**

**Dr. Grandon Gill** holds an AB (cum laude) from *Harvard College* and an MBA (high distinction) and DBA from *Harvard Business School*. He is a professor and the Academic Director of the Doctor of Business Administration program at the *University of South Florida's Muma College of Business*. He was also recently elected president of the *Informing Science Institute*.



**Dr. Penelopia Iancu**

**Université de Moncton, Canada**  
**Faculty of arts and social sciences, School of Social Work**  
**Vice-president of the Interdisciplinary Research Group on Children and Youth Mental Health**

**Dr. Penelopia Iancu** is doing research on the following topics: children and youth mental health, family intervention, interprofessional collaboration and integrated service delivery, complex problem-solving using creativity, ethical issues of documentation and social work education. She focuses on qualitative and mixed research and interdisciplinarity. She is



Vice-president of the Interdisciplinary Research Group on Children and Youth Mental Health, from Université de Moncton, Canada



**Professor Donald Ropes**

**Inholland University of Applied Sciences, Netherlands  
Business Research Centre**

**Research line: Learning and Development in Organisations**

Donald Ropes is Professor of Learning and Development in Organisations at Inholland University of Applied Sciences. His research is on learning in complex environments, specifically how we can help people and organisations to become responsive: able to absorb shocks, adapt and thrive in new situations and look for challenges that can be turned into opportunities. For more than ten years, Professor Ropes has been working on advancing Design Science Research as a way to contribute to organisations' development while at the same time expanding organisational learning theory.



**Dr. Nagib Callaos**

**International Institute of Informatics and Systemic, USA  
Editor-in-Chief of the Journal of Systemics, Cybernetics and Informatics**

**Dr. Nagib Callaos** is the Founding President of the a 32 years old Multi-Disciplinary Organization oriented 1) to solve real life problems which mostly require multi-disciplinary teams and inter-disciplinary research/communication and 2) to synergistically relate all disciplinary and inter-disciplinary departments of the University Simon Bolivar with private and public corporations. He also was the founding president of several organizations on research, development, and technological innovation and, for many years, consultant in Information Systems.