



**34TH INTERNATIONAL
TEST AND EVALUATION SYMPOSIUM**

T&E in a Time of Risk and Change

Monday, Oct 2 – Pre–Symposium Tutorials

**Tuesday-Thursday, Oct 3–5 – Symposium Plenary and
Technical Track Sessions**

Thursday, Oct 5 – Post–Symposium Tutorials

2017 PROGRAM GUIDE

Hyatt Regency Reston Town Center
1800 Presidents Street
Reston, Virginia 20190

Jointly Hosted by the

***ITEA George Washington, Francis Scott Key,
Hampton Roads, and Southern Maryland Chapters***

ITEA would like to thank our Sponsors!

Gold Level Sponsors



Booz | Allen | Hamilton

strategy and technology consultants



Silver Level Sponsors



Bronze Level Sponsors



Acquisition and the T&E Workforce Panel Sponsor



WELCOME TO THE 34TH INTERNATIONAL TEST AND EVALUATION SYMPOSIUM!

INDEX

Welcome	1
Monday, October 2nd – Pre–Symposium Tutorials	2
Tuesday, October 3rd – Symposium Day One	5
- Plenary Session	
- Special Panels	
○ Acquisition and the T&E Workforce	
○ DoD OTA Commanders	
- Networking Lunch	
- Technical Track Sessions	
- Networking Reception	
Wednesday, October 4th – Symposium Day Two Morning Session	7
- Plenary Session	
- Special Panels	
○ Test Ranges	
○ Modelling and Simulation	
2017 Test and Evaluation Professional Award Ceremony and Luncheon	8
- ITEA Test & Evaluation Professional Award Recipients	
ITEA Life Members	10
Wednesday, October 4th – Symposium Day Two Afternoon Sessions	11
- Technical Track Sessions	
Thursday, October 6th – Symposium Day Three	13
- Plenary Session	
- Special Panels	
○ Cybersecurity	
○ Space	
- Symposium Closing Session	
- Adjourn	
Thursday, October 6th – Post–Symposium Tutorials	14
<i>The ITEA Journal of Test and Evaluation</i> Upcoming Issue Themes	15
Certified Test and Evaluation Professionals (CTEPs)	18
Certified Test and Evaluation Professional (CTEP) Credential	19
Exhibit Hall Floor Plan and Booth Assignments	20
Exhibitor Profiles	21
Meeting Room Map	23
Upcoming ITEA Education - Mark Your Calendars!	24
Schedule-At-A-Glance	25

WELCOME TO THE 34TH INTERNATIONAL TEST AND EVALUATION SYMPOSIUM!

Dear Test & Evaluation Professional,

Thank you for joining us for the 34th Annual International Test and Evaluation Symposium—the **T&E community's premier event!**

The current government climate can pose a change to the defense acquisition system. It is important to understand ways to improve communications and leverage existing investments made by both DoD and commercial firms to preserve U.S. technological superiority. How will the current military budget, new administration, and the defense industry adjust in a time of risk and change?

Is your organization ready?

We encourage you to help us explore these ideas and others related to “*T&E in a Time of Risk and Change*” as you: **Hear** from our community's thought-leaders during the Plenary Sessions; **Listen** to and discuss emerging fields and research topics during the Technical Track Sessions; **Share** new knowledge and experience as you network with your peers during the breaks, meals, and reception; and, **Learn** about today's and tomorrow's test technology from our exhibitors offering you the opportunity for hands-on exercises on using various software and/or hardware tools. All designed to give you a great experience while you **ADVANCE** your career and your organization!

Sincerely,

Erwin Sabile

SYMPOSIUM CHAIR

CONTINUING EDUCATION UNITS (CEUs)

Each of the 4-hour Pre-Symposium Tutorials provide 4 contact hours of instruction (4 CEUs) that are directly applicable to your professional development program, including the Certified Test and Evaluation Professional Credential (CTEP).

In addition to the Pre-Symposium Tutorials, the Annual Symposium provides 4 contact hours of instruction (4 CEUs) for each half-day, 8 contact hours of instruction (8 CEUs) for each full-day, or 20 contact hours of instruction (20 CEUs) for attending the full Symposium, that are directly applicable to your professional development program, including the Certified Test and Evaluation Professional Credential (CTEP).

A very special thanks to our host Chapter Presidents!

Francis Scott Key Chapter

Ms. Chris Susman
SURVICE Engineering

Hampton Roads Chapter

Mr. Eric S. Whiteman
SURVICE Engineering

George Washington Chapter

Ms. Laurie Moe Buckhout

Southern Maryland Chapter

Mr. Ed Greer
Greer Consulting

Your Symposium Committee

SYMPOSIUM CHAIR



Mr. Erwin Sabile

Booz Allen Hamilton

PROGRAM TECHNICAL CO-CHAIRS

Mr. Tom Treacle, DelliEMC

Mr. Bruce Einfalt, Applied
Research Laboratory/PSU

TUTORIAL CHAIR

Steven “Flash” Gordon, PhD
Georgia Tech Research Institute

INTERNATIONAL SPEAKERS

Ms. Gloria Deane

DOT&E

AWARDS COMMITTEE CHAIR

Ms. Stephanie Clewer

PAE

EXHIBITORS AND SPONSORSHIP COMMITTEE CHAIR

Ms. Lena Moran

TRAX International

TECHNICAL TRACK 1ST CHAIRS

Mr. Peter De Salvo

Mr. Bruce Einfalt

Mr. Phil Hallenbeck

Mr. Christopher Mazur

Jeffrey McNeil, PhD

Mr. Ed Powell

Mr. Greg Simmons

Mr. Geoff Wilson

TECHNICAL TRACK 2ND CHAIRS

Mr. Pete Crump, CTEP, PMP

Mr. Karl King

Mr. Thomas O'Brien

Mr. Antwan Phan

Mr. Andrew Shaffer

Mr. Thomas Treacle

Mr. Billy Williams

VOLUNTEERS

Wilson Felder, PhD

Mr. Doug Messer

MONDAY, OCTOBER 2ND – PRE–SYMPOSIUM TUTORIALS
(NOTE: SEPARATE REGISTRATION FEE REQUIRED)

8:00 a.m. – 12:00 p.m. Morning Tutorials

Cybersecurity Test & Evaluation

Instructor: **Mr. Pete Christensen** – Director, Cyber Support to OSD Programs, The MITRE Corporation

Now more than ever, Program Managers (PM) must ensure that cybersecurity be given careful consideration throughout the system lifecycle. Specifically, this includes identifying cybersecurity requirements early in the acquisition and systems engineering lifecycle. Initiating a focus on cybersecurity earlier will provide PMs the opportunity to give careful consideration, upfront, to related cybersecurity testing activities that can be integrated into the engineering planning and design phases. Results of informal cybersecurity testing can then be applied to influence design and development efforts and to posture programs for success in Developmental Test (DT) and Operational Test (OT). The Deputy Assistant Secretary of Defense (DASD) Developmental Test and Engineering (DT&E) has collaborated with key systems engineering stakeholders to develop disciplined processes that will assist Program Managers (PM) in implementing an incremental and iterative phased approach to develop cyber secure systems. The National Cyber Range (NCR), under the purview of the Test Resource Management Center (TRMC), is a resource that can be leveraged by PMs to support cybersecurity testing. This presentation will provide an overview of the cybersecurity test and evaluation phased approach and the NCR.

How to Build a Reliability Growth Program

Instructor: **Mr. Shawn Brady and Mr. Wayne Martin** – AMSAA, Center for Reliability Growth

Reliable systems are more likely to be fielded sooner, more likely to be available when the Soldiers need them, and more likely to reduce maintenance costs over the system's life cycle. Unfortunately, many programs in Department of Defense (DoD) fail to produce reliable systems. As a member of the defense acquisition community, are you armed with the knowledge and tools needed to help the DoD develop, test, and field more reliable systems? This tutorial will help you answer “yes”. For the past decade, the Army’s Center for Reliability Growth at the Army Materiel Systems Analysis Activity (AMSAA) has been working to improve Army and DoD reliability by providing policy, guidance, standards, methods, tools, and training. This tutorial provides an overview of the latest methods and tools that DoD analysts should consider when managing or supporting a reliability program. Specific topics include adequately contracting and designing for reliability, identifying

and mitigating reliability risks early using AMSAA’s Reliability Scorecards, determining appropriate reliability test durations, building a realistic reliability growth plan using AMSAA’s Planning Model Based on Projection Methodology (PM2), and projecting the anticipated improvement in reliability using the AMSAA Maturity Projection Model (AMPM).

Processes for Testing with International Partners

Instructor: **Ms. Gloria Deane, Mr. Mitchell Dossett, and Mr. Robert Butterworth** – DOT&E International Programs

Defense budgets are shrinking; requirements for complex systems and systems-of-systems are increasing; and interoperability with allies is becoming the norm by necessity. These are challenges all nations are facing. Duplicative testing is inefficient for all nations, so sharing of “test resources” is highly desirable. “Test resources” includes test facilities, open air ranges and operating areas, laboratories, equipment, expertise, methods, data, and funds. Upon making the decision to test, participants must complete certain administrative actions to implement a test program. To test with an international partner an international agreement must be in force. To test under such an agreement, the partnering nations must negotiate and approve a project arrangement. The laws of sovereign nations govern such activity and DOD has developed administrative processes to ensure statutory compliance. The Office of the Director, Operational Test and Evaluation (DOT&E) will offer a tutorial to inform members of the test community of the capabilities and limitations of the international Test and Evaluation Program and how to develop project arrangements with an individual and with multiple partnering nations. Speakers will be representatives from the Office of the Director, International Cooperation in the Office of the Undersecretary of Defense for Acquisition, Technology, and Logistics, the International Test and Evaluation team within DOT&E, and international partners with whom the DOD test community has worked for many years. Speakers will be representatives from the Office of the Director, International Cooperation in the Office of the Undersecretary of Defense for Acquisition, Technology, and Logistics, the International Test and Evaluation team within DOT&E, and international partners with whom the DOD test community has worked for many years.

T&E....1, 2, 3: The Fundamentals

Instructor: **Mr. Matt Reynolds** – Test and Evaluation Consulting

This tutorial is designed to describe the evolution of T&E over the course of the last several decades, as well as to explain the timeless concepts and precepts that apply to all testing. The literature on T&E is replete with policies and practices that have served the needs of specific generations of systems, of technologies and of acquisition strategies. But little has been published that describes the universal principles that underlie those policies. An understanding of these principles and smart implementation of them are critical to the success of complex T&E programs. The primacy of thorough planning, contingency strategies, statistics-based test design, enterprise level thinking, and a thorough understanding of customer requirements (both stated and unstated) will be addressed, and will be reinforced by lessons learned from the past programs.

1:00 p.m. – 5:00 p.m. Afternoon Tutorials

The Art of Planning Preview T&E: Australian Techniques for Early Test Strategies for Technical Maturation and Risk Reduction

Instructor: **Group Captain Keith F. Joiner, PhD** – (Royal Australian Air Force, Ret'd), CSC, Senior T&E lecturer, University of New South Wales, Australia

This four-hour tutorial will benefit anyone who is involved in planning or conducting early T&E to de-risk and shape more successful projects. Such participants are likely to have been part of such planning processes before, but this workshop is an opportunity for them to examine a fresh systematic approach and see where their previous processes and personal master test planning skills might be made more robust. Western governments continue to find an unacceptable proportion of projects fail to deliver the capability sought and that inadequate early T&E or trialing is a significant factor in the risks not being determined early enough for them to be mitigated. In a Senate inquiry into Defence procurement (2012, especially Ch. 2 & 12) this was found to be some ten percent of projects by value. A more recent report on broader Australian government public project failings (Shergold Report, 2015) found systemic inability to identify and plan early trialing as part of scoping projects. New Defence T&E policy was implemented in Australia from 2013-14 to systematically plan and conduct de-risk or preview T&E (See Dr. Joiner article ITEA Journal, Dec 2015). Focused workshops ensure preview T&E is driven by significant technical and operational risk into a program of key confirmatory demonstrations, configuration audits and user trials. Within the U.S. DoD, such early T&E would typically occur during the Technical Maturation and Risk Reduction (TMRR) life cycle phase and thus would be planned and funded in the

Analysis of Alternatives (AOA) phase at Milestone A. The Australian planning technique has now been confirmed in Defence T&E policy updates (2016) and is taught at the leading Defence university in Australia, University of New South Wales Canberra, as part of all postgraduate master programs in system engineering and project management. Workshop participants will be given an overview of the workshop process and use a hypothetical capability requirement to role-play the workshops, to determine indicative outcomes of each phase of the hypothetical project. Two Australian examples will then be covered where such planning was positively used and another where it was comparatively ignored to contrast the benefits to de-risking projects through such early T&E. At the end of the workshop, students will have a chance to reflect to the group on their own possible chances to have previously used such processes.

Data Science and Its Relationship to Test & Evaluation

Instructor: **Mark J. Kiemele, PhD** – Air Academy Associates

In a data-driven economy, industry and government leaders rely increasingly on skilled professionals who can see the significance in data and use data analytic techniques to properly collect data, solve problems, create new opportunities, and shape change. Data science can be defined as the art and science of solving problems and shaping decisions through the precise collection and analysis of data. This tutorial is intended for executives, leaders, managers, and practitioners who need to know how their critical thinking can be impacted by such things as Big Data, Predictive Analytics, Design of Experiments (DOE) and other tools in the Data Science toolkit. This tutorial will cover the need for critical thinking as well as a high-level view of a variety of data analytic tools that can be used to enhance critical thinking. Even if one never designs a test or evaluates its results, this tutorial participant will be able to explain the uniqueness of DOE and why big data and predictive analytics are needed to generate the analytical capability every organization needs.

Identifying Requirements and Vulnerabilities for Cybersecurity; or How We Learned to Stop Worrying and Love the Six-Phase Cybersecurity T&E Process

Instructor: **Michael Lilienthal, PhD, CTEP**, Director of Cyber and Navy Programs, Electric Warfare Associates, and **Mr. Patrick Lardieri**, Lockheed Martin Corporation

Many Service acquisition, System Engineering (SE), and Test and Evaluation (T&E) teams are starting to move their programs from “checklist information assurance or compliance” cyber security approach to a proactive, iterative risk management process with the goal of ensuring personnel can still carry out their duties in a cyber contested environment. Many people are struggling to formulate a practical and effective approach to develop requirements and a plan to incorporate cyber security into their SE and T&E activities using the recent spate of cybersecurity policies and guidelines released by the Office of the Secretary of Defense (OSD). This tutorial will step using the Navy’s Cyber Table Top (CTT) Wargaming Process and the National Cyber Range’s cyber security evaluation testing process as an approach to gain actionable cyber threat understanding. The tutorial will also show how the use of the CTT and the NCR support execution of DOT&E’s Six Phase Cybersecurity T&E process. The CTT (which has been adopted by the Navy) is a rigorous, intellectually intensive and interactive data collection and analysis process that introduces and explores the potential effects of cyber offensive operations on the capability of a system to carry out its designed functions. It produces a prioritized list of actionable recommendations to support more informed decisions and tradeoffs in a fiscally constrained environment. Personnel using the process are better able to identify threat vectors, understand the vulnerabilities and mission risks of their system under development, and understand cyber threat consequences categorized by their impact and their likelihood of successful attacks. This helps scope the cyber security testing done at the NCR and other places. The tutorial will also show how the use of the cyber wargaming process in conjunction with the NCR will inform systems engineers on tradeoffs and potential workarounds to prevent or minimize cyber effects. The tutorial is based on the lessons learned from using the process and the NCR to support NAVAIR and SPAWAR acquisition programs. It is intended for use by Acquisition Program Management Offices, Systems Engineers, Chief Developmental Testers, and Lead Developmental Test and Evaluation (DT&E) Organizations.

Test and Evaluation Across the Acquisition Lifecycle

Instructor: **Michael Flynn, PhD, CTEP** – Defense Acquisition University

This tutorial will focus on the latest DoDI 5000.02 guidance for defense acquisition process from a Test and Evaluation perspective with emphasis on the involvement in the Systems Acquisition Lifecycle and T&E's relationship to the Systems Engineering processes used throughout the lifecycle of major acquisition programs from requirements generation, through Post Milestone C. Coverage will include the relationship between the Test and Evaluation Master Plan (TEMP), and Systems Engineering Plan (SEP) as they proceed through each of the major Milestone phases. Focus will be on the major events that occur during each phase of acquisition, required documentation, and expected entrance and exit criteria for successfully achieving approval. The intended audiences are engineers, program managers, and industry for an understanding of DoD acquisition in relationship to T&E's involvement.

Using TENA and JMETC to Reduce Risk, Saving Time and Money

Instructor: **Mr. Gene Hudgins** – TENA and JMETC User Support Lead, KBRWyle

Together, TENA and JMETC enable interoperability among ranges, facilities, and simulations in a timely and cost-efficient manner. TENA provides for real-time system interoperability, as well as interfacing existing range assets, C4ISR systems, and simulations; fostering reuse of range assets and future software systems. JMETC is a distributed, LVC capability which uses a hybrid network architecture; the JMETC Secret Network (JSN), based on the SDREN, is used for secret testing and the JMETC Multiple Independent Levels of Security (MILS) Network (JMN) is the T&E enterprise network solution for all classifications and cyber testing. JMETC provides readily-available connectivity to the Services’ distributed test and training capabilities and simulations, as well as industry resources. This tutorial addresses using the well-established TENA and JMETC tools and capabilities to reduce risk in an often-uncertain environment; regularly saving ranges time and money in the process.

**TUESDAY, OCTOBER 3RD – SYMPOSIUM DAY ONE
(EXHIBIT HALL OPEN 7:00 A.M. TO 7:00 P.M.)**

Opening Symposium Plenary Session

- 7:45 a.m. Welcome: **Mr. Gene Hudgins** – President, International Test and Evaluation Association, KBRWyle
- 7:50 a.m. Opening Remarks: **Mr. Erwin Sabile** – Symposium Chair, Booz Allen Hamilton
- 8:00 a.m. Opening Keynote: **Mr. David W. Duma** – Acting Director, Operational Test and Evaluation
- 8:45 a.m. Guest Speaker: **Steven Hutchison, PhD** – Director, Capability Development Support, Department of Homeland Security (DHS)
-

9:30 a.m. **Break with Exhibitors**

10:00 a.m. Featured Speaker: **J. Brian Hall, PhD** - Acting DASD(DT&E), Deputy Assistant Secretary of Defense for Developmental Test and Evaluation, Office of the Under Secretary of Defense for Acquisition, Technology and Logistic

10:30 a.m. **Acquisition & T&E Workforce Panel**

Chair: **Mr. Wayne Dumais** – Test Area Manager, Office of Test and Evaluation, Department of Homeland Security

Panelists:

Mr. James C. Cooke - Director, U.S. Army Evaluation Center

Mr. Omar Merced - Senior Electronics Engineer, FAA

Robin Poston, PhD - Professor and Dept Chair, Business Information & Technology, and Director Systems Testing Excellence Program, Systems Testing Excellence Program, University Memphis

Mr. Thomas Simms - Deputy Director, Policy and Workforce Development , DASD DT&E

Mr. Ken Stenfanak - DAU

Noon **Lunch with Exhibitors**

1:00 p.m. **DoD OTA Commander's Panel**

Chair: **Laura Freeman, PhD** – Assistant Director of the Operational Evaluation Division at the Institute for Defense Analyses, DOT&E, Office of the Secretary of Defense (OSD)

Panelists:

RADM Paul Sohl – Commander, Operational Test & Evaluation Force (COMOPTEVFOR)

MG John W. Charlton - Commanding General, U.S. Army Test and Evaluation Command (ATEC)

Maj. Gen. Matthew H. Molloy – Commander, Air Force Operational Test and Evaluation Center (AFOTEC)

COL Mark T. Brinkman - Director, Marine Corps Operational Test and Evaluation (MCOTEA)

3:00 p.m. **Break with Exhibitors**

2017 PROGRAM GUIDE

**TUESDAY, OCTOBER 3RD – SYMPOSIUM DAY ONE
(EXHIBIT HALL OPEN 7:00 A.M. TO 7:00 P.M.)**

3:30 p.m. – 5:00 p.m. **Technical Track Sessions**

<u>Time</u>	<u>Room</u>	<u>Title of Presentation</u>	<u>Speaker</u>	<u>Organization</u>
Track 1: Cyber Testing Systems of Systems				
Track 1st Chair: Jeffrey McNeil, PhD - Clemson University				
Track 2nd Chair: Mr. Billy Williams - KBRWyle				
3:30 PM	Lake Audubon	<i>Implementation Challenges for Risk Management Framework on RDT&E Systems</i>	Mr. Donald Paul Waters	412 Test Engineering Group
4:00 PM		<i>Cyber Operational Vulnerabilities Assessment (COVA) Process</i>	Mr. Scott "Gunner" Thompson	Director of Cyber and AF Programs
4:30 PM		<i>Self-Cleansing Intrusion Tolerance: A new approach to reduce the impact of data breaches</i>	Arun Sood, PhD	George Mason University and SCIT Labs
Track 2: Modeling and Simulation for T&E				
Track 1st Chair: Mr. Phil Hallenbeck, CTEP - The MITRE Corporation				
Track 2nd Chair: Mr. Pete Crump, CTEP, PMP - Georgia Tech Research Institute				
3:30 PM	Lake Thoreau	<i>Surrogate Modeling of Stochastic Computer Simulation Data – Identifying Insurgents from a Helicopter Flying Surveillance</i>	Thomas A. Donnelly, PhD, CAP	SAS Institute, Inc.
4:00 PM		<i>Technologies for Interoperability of Live Fighter Platforms with Virtual & Constructive Simulations for Distributed Test</i>	Mr. Mark Phillips	Lockheed Martin
		Edward Powell, PhD	Ed Powell Consulting	
4:30 PM		<i>Joining Forces Beyond Naval Aviation T&E</i>	Mr. Hank Steinfeld Ms. Paola Pringle	Naval Air Systems Command
Track 3: Autonomous Systems Test & Evaluation				
Track 1st Chair: Mr. Christopher Mazur - TRMC				
Track 2nd Chair: Mr. Thomas O'Brien - TRMC				
3:30 PM	Reston A/B/C	<i>Constrained Learning for Assured Autonomy</i>	John Sustersic, PhD	ARL Penn State
4:00 PM		<i>An Analysis of Autonomous Systems Test Methodology</i>	Mr. Jonathan Elliott	TRMC
4:30 PM		<i>Leveraging CRIIS for LVC testing in O/DT&E</i>	Mr. Jonathon Skarphol	Rockwell Collins
Track 5: Acquisition Reform in Today's T&E Environment				
Track 1st Chair: Mr. Peter De Salvo - The BOEING Company				
Track 2nd Chair: Mr. Karl King - TRIDEUM Corporation				
3:30 PM	Grand Ballroom C	<i>Driving a "Team of Teams" Mentality to Thrive in a Complex and Rapidly Changing Environment</i>	Mr. Paul McNamara	The Sente Group, Inc.
4:00 PM		<i>How T&E Functions in an Acquisition of Capabilities Environment</i>	Ms. Paola Pringle Mr. John Auburn	Naval Air Systems Command
		4:30 PM	<i>Removing Range Boundaries – The Importance of Developing Partnerships and Mobile Systems for "Range-Free" Testing</i>	Mr. Rob Vargo
Track 7: Software Test Systems and Best Practices for T&E				
Track 1st Chair: Mr. Bruce Einfalt - Applied Research Laboratory/PSU				
Track 2nd Chair: Mr. Antwan Phan - SPAWAR				
3:30 PM	Town Center A/B	<i>I Don't Believe Your Company is Agile!</i>	Mr. Alex Martins Mr. Jeff Hughes	CA Technologies
4:00 PM		<i>Using Layered Model-Based Requirements to Achieve Continuous Testing</i>	Mr. Alex Martins Mr. Jeff Hughes	CA Technologies
4:30 PM		<i>Software Test Automation Engineering</i>	Mr. Andrew Pollner	ALPI/ASTQB/ISTQB

5:00 p.m. – 7:00 p.m. - Networking Reception with Exhibitors

Networking Reception Guest Speaker

Mr. Kevin Gates, Professional Staff Member - House Armed Services Committee

WEDNESDAY, OCTOBER 4TH – SYMPOSIUM DAY TWO
(EXHIBIT HALL OPEN 7:00 A.M. TO 4:00 P.M.)

Plenary Session

- 7:45 a.m. **Day Two Remarks** - Symposium Technical Program Co-Chairs
 Mr. Tom Treakle – DellEMC
 Mr. Bruce Einfalt – Applied Research Laboratory/PSU
- 8:00 a.m. **Thursday Keynote: Arun Seraphin, PhD** – Professional Staff Member, Senate
 Armed Services Committee
- 8:30 a.m. **Featured Speaker: Mr. Jaime Figueroa** – Deputy Director, WJ Hughes FAA
 Technical Center, Federal Aviation Administration (FAA)
-

9:00 a.m. **Test Range Panel**

Chair: **Ms. Leslie Taylor** – Naval Air Warfare Center Aircraft Division / Deputy
Assistant Commander for Test and Evaluation, Naval Air Warfare Center
Aircraft Division (NAWCAD)

Panelists:

- Brigadier General Eric L. Sanchez** – Commander, White Sands Missile Range
(WSMR)
Brig. Gen. Carl E. Schaefer - Commander, 412th Test Wing, Edwards Air Force
Base
Gp Capt Keith F. Joiner, (Royal Australian Air Force, Ret.), PhD, CSC,
University of New South Wales, Australia
Mr. Eric Spigel - Ranges, Engineering and Analysis Department Head, NUWC
Division Newport
Mr. Christopher Smith - Director, Transportation Security Laboratory, DHS
-

10:30 a.m. **Break with Exhibitors**

11:00 a.m. **Modelling and Simulation Panel**

Chair: **I D (Dai) Morris MA, D.Phil, M.Inst.P, C.Phys, Cert. IoD** – Head of
Capability (Weapons, Evaluation and Capability Assurance), UK Ministry of
Defence

Panelists:

- Lt. Gen. Robert Walsh** - Deputy Commandant for Combat Development and
Integration, Marine Corps Combat Development Command
Col Joseph Nolan - Deputy Director, U.S. Army Modeling and Simulation Office
(AMSO)
Jim Clifton, PhD - PM JSF Joint Simulation Environment, NAVAIR
Mr. Michael Cohen - Senior Program Officer, Committee on National Statistics
Syed Mohammad, PhD - S&T, DHS
-

12:30 p.m. **ITEA T&E Professional Awards Luncheon**

2017 TEST AND EVALUATION PROFESSIONAL AWARD RECIPIENTS

The International Test and Evaluation Association (ITEA) annually presents six (6) Professional T&E Awards to individuals and groups that have made significant contributions to advancing the test and evaluation profession. In addition, ITEA also presents the Board of Directors' Award, the President's Award, Energizer Award, the Chapter of Excellence Awards, and the Chapter of the Year Award to recognize individuals and Chapters for their significant contributions to the Association. The International Test and Evaluation Association (ITEA) Board of Directors and Committee Chair, Stephanie Clewer, relies on ITEA members and T&E leaders to identify and submit nominations of individuals and teams worthy of recognition by the 2017 ITEA T&E Professional Awards Program.

ALLEN R. MATTHEWS AWARD – David W. Duma

The 2017 Allen R. Matthews Award is presented to David W. Duma, Principal Deputy Director, Operational Test and Evaluation, in recognition of his outstanding professional career spanning more than 45 years of service to the U.S. Navy, government and industry. Throughout his career, his many lasting contributions to the practice of test and evaluation have been the defining thread to his service. On three separate occasions, Dave stepped up without hesitation to serve as the Acting Director for Operational Test and Evaluation. Dave has been awarded the Presidential Executive Rank Award on two occasions; the Meritorious Executive Award; and the Distinguished Executive Rank award. Dave was also presented the National Order of Merit award by the President of the French Republic in recognition of his outstanding role in developing ties between the test and evaluation centers of the two nations. As an ITEA member for over 21 years, Dave Duma has helped guide the Association by example and practice: Advancing the state of the art of Operational Test and Evaluation and its role in DoD acquisition through his role as a DoD thought leader; Authoring countless articles in The ITEA Journal of Test and Evaluation; and, Speaking at ITEA Workshops and Symposia. Beyond ITEA, Dave Duma regularly lectures at Defense Acquisition University promoting improvement of the test and evaluation workforce. In recognition of his many contributions and his lifetime of invaluable service to test and evaluation that have advanced our testing capabilities and benefited our warfighters, ITEA is pleased to recognize David W. Duma as the 2017 recipient of the Allen R. Matthews Award.

SPECIAL ACHIEVEMENT AWARD – Jaco Loubser

The ITEA Special Achievement Award is presented to Jaco Loubser for his exemplary performance and untiring dedication to the planning, management and execution of the test and evaluation program for the Thales Hawkei vehicle during the period July 2016 through June 2017. The Hawkei vehicle is a light 4x4 protected mobility vehicle designed to meet demanding Australian Defence Force requirements for a light armoured patrol vehicle that can be lifted by a Chinook helicopter. Jaco was instrumental during the airlift testing having to engage and coordinate across the full complement of design engineers, project management, vehicle operators, helicopter operators and specialist external airlift personnel to deal with the multitude of details necessary to ensure the safe, effective and efficient testing. Jaco combined his aerospace testing experience with his newly acquired vehicle testing knowledge, he delivered a very successful result within the projects very challenging timeframes.

RICHARD G. CROSS AWARD – Mark Kiemele, PhD

This year the recipient of the Richard G. Cross award is Dr. Mark Kiemele, Co-Founder and President of Air Academy Associates. For over thirty years, Dr. Mark Kiemele has pioneered fact-based mathematical tools, techniques, rules-of-thumb, and methodologies that have fundamentally helped test and evaluation in academic, industrial, governmental and professional organizations around the world. He has personally instructed over 30,000 leaders, scientists, engineers and managers, in all seven continents. For the past ten years, Mark has authored and personally taught T&E tutorials that have consistently received the very highest ratings. The subjects have included Design of Experiments (DOE) as a powerful data collection strategy, Historical Data Analysis, High Throughput Testing, Measure Systems Analysis, Operational Capability as part of T&E, and Primers in Scientific Test and Analysis Techniques (STAT). Mark is also a well-published author in T&E. His tutorials, well-vetted articles and speaking events at T&E conferences have always been at no cost because of Mark's passion and commitment to T&E, and to the soldier, sailor and airman. The ability to anticipate T&E's future requirements with the latest tools and methods remains one of Mark's many contributions. Throughout his illustrious and unprecedented career, Mark maintains the character and values he had since being commissioned as an officer in the United States Air Force: modesty, humility, honesty, hard work, loyalty to family, colleagues, customers and friends, and absolute integrity. ITEA is pleased to present this well-deserved award to Dr. Mark Kiemele.

PUBLICATIONS AWARD – Paola Pringle, Hank Steinfeld, Patrick Lardieri, Michael Lilienthal, and David Brown

The 2017 ITEA Publications Award is presented to the team who made significant contributions to the Cybersecurity Table Top (CTT) process and who developed and authored the technical article “Table Top Wargaming: Cost Effective Planning for Cybersecurity Test and Evaluation; Or, How I Learned to Stop Worrying and Love the Six-Phase Cybersecurity T&E Process,” appearing in the September 2016 Issue of The ITEA Journal of Test and Evaluation. This outstanding and timely article has been instrumental in socializing the concept of how to get started in designing effective, efficient T&E for cybersecurity, with early evaluations to collect data and answer key questions in the initial steps of the cybersecurity six-phase process. The CTT process is widely used, indicating the impact of this process.

TECHNICAL ACHIEVEMENT AWARD – Command and Control Integration (C2I) Team, Joint Staff J6, C4 Assessments Division

The team provided cutting edge broadband cellular communications to the tactical edge and integrated applications that made the technology useful to the Warfighter. The C2I Team's effort aided in ground breaking security measures to protect this tactical capability. In the process, critical and enduring partnerships were forged between offices within the Joint Staff J6, the National Security Agency, Defense Information Systems Agency, Defense Advanced Research Projects Agency, U.S. Navy Space and Naval Warfare Systems Command, U.S. Navy Air Systems Command, and major acquisition program offices such as U.S. Army Project Manager Warfighter Information Network - Tactical and U.S. Army Program Executive Office Soldier. Their efforts have led to the benefit of the service men and women putting themselves in harm's way in defense of our freedoms.

JUNIOR ACHIEVER AWARD – Tiana Freericks

Ms. Tiana Freericks is presented the 2017 International Test and Evaluation Association (ITEA) Junior Achiever Award in recognition of her outstanding service as the Probability of Raid Annihilation (PRA) Modeling and Simulation (M&S) Testbed Project Lead for NSWC Corona. Ms. Freericks led development of automated data processing, event reconstruction, metric calculation, statistical methods, and reporting for Navy M&S. A new Navy capability now exists to support timely analysis of thousands of Testbed trials, with streamlined identification of outliers and anomalies via metrics-based analysis. The innovations have significantly reduced T&E labor hours and have made the Navy T&E processes substantially more efficient and powerful. Ms. Freericks groundbreaking strategies, improvements and innovations have led to new Navy best practices and demonstrate significant investment in, and enhancement of the T&E profession.

ENERGIZER AWARD – Chris L. Susman

The 2017 ITEA Energizer Award is presented to Ms. Chris Susman for her dedicated effort and unwavering leadership in the advancement of the ITEA Francis Scott Key (FSK) Chapter and ITEA's Cyber Security Workshop: Challenges Facing Test & Evaluation. Her efforts to support ITEA at both the International and Chapter Level have resulted in increased membership for the Chapter and a re-invigoration of ITEA's Cyber Security Workshop—providing quality professional development opportunities for ITEA Members and non-Members alike. Chris has served at various positions within the FSK Chapter, currently serves as the Chapter President, and has volunteered her time, talents, and energy to the FSK Chapter to conduct the vitally important Cyber Security Workshop for Test & Evaluation for several years.

BOARD OF DIRECTORS' AWARD – Steven “Flash” C. Gordon, PhD

The 2017 ITEA Board of Directors Award is reserved for an individual who has contributed to the growth, development, goals, and mission of the Association. The ITEA Board of Directors has the pleasure of presenting the 2017 ITEA Board of Directors' Award to Dr. Steve “Flash” Gordon. Flash serves as the Editor-in-Chief of The ITEA Journal of Test and Evaluation and as Chair of the ITEA Publications Committee – developing the themes for The ITEA Journal, soliciting and editing articles, soliciting advertisers, and publishing the Association and ITEA Chapter News. The ITEA Journal is the test community's premier technical publication and ITEA members' most valued benefit of their membership. Flash continually publishes The ITEA Journal and steers the Publications Committee with unparalleled leadership, vision, and technical acumen. The Board has received numerous and unsolicited compliments on the quality and value of The ITEA Journal from many ITEA members and non-members alike. The ITEA Journal continues to tackle the hot topics and issues that affect our T&E community, such as: “Unmanned and Autonomous Vehicle Testing”; “Test and Evaluation of Hypersonic Systems”; and, “T&E for Cyber Security and Readiness.” When Flash is not working on The ITEA Journal, he is leading the revitalization of the Central Florida Chapter of the Association. Flash has often volunteered to serve as the International Symposium Tutorial Chair, Technical Chair, and Panel Chair.

PRESIDENT'S AWARD – Edward Greer

The 2017 ITEA President's Award is reserved for an individual who selflessly steps up to assist the president in the execution of the organization's goals and missions. As ITEA President, I am proud to present the 2017 ITEA President's Award to Mr. Edward Greer. Everyone is familiar with Ed's stellar T&E career with DT&E, TRMC, and the Atlantic Test Range. But, I want to tell you about his contributions to ITEA. Ed currently serves on the ITEA Board of Directors, he is an active member of the Symposium Planning Committee, he is the President of the Southern Maryland Chapter of ITEA, and he is actively leading a group for the ITEA Web site upgrade. Ed is an ITEA Life Member, having been a member of ITEA since 1992, and served as President of the Southern Maryland Chapter—ITEA's original Chapter—from 1995 through 1998. While away, the Southern Maryland Chapter became inactive but upon Ed's return, he has been instrumental in reactivating the chapter and holding numerous chapter engagements. Ed is a primary member of the Symposium Planning Committee, and is always present on our weekly calls to make speaker recommendations. At the helm of the ITEA Web site upgrade, Ed has become proficient on the tools and technical capabilities of web site management and development, reviewed many proposals, selected a vendor based on budget and capability, and continually meets with the team to assure we get a web site environment our association needs.

ITEA Life Members

Charles E. Adolph	Dianne H. Jordan, PhD
Rebecca Badgley	Philipp Christian Merz
Damir Banjanovic	Douglas D. Messer
Karen Barker	James Neumeister
John V. Bolino	Peter G. Nikoloff
Katherine Bower	Alan Plishker
Stewart Burley	Paul A. Polski
Herbert Cheever	Michael John Rafferty, Jr.
Duston Cline	Matthew T. Reynolds
James Duff	Jim Sebolka
Edward R. Greer	LtCol William Singletary (USAF)
Joseph G. Hoeg, PhD	COL Richard M. Stuckey (USAF, Ret.)
Catherine Jaggard	COL Dave Wellons (USA, Ret.)
Alan Jenkins, PhD	Beth Wilson, PhD

WELCOME TO THE 34TH INTERNATIONAL TEST AND EVALUATION SYMPOSIUM!

**WEDNESDAY, OCTOBER 4TH – SYMPOSIUM DAY TWO
(EXHIBIT HALL OPEN 7:00 A.M. TO 4:00 P.M.)**

2:00 p.m. – 3:30 p.m. **Technical Track Sessions**

Time	Room	Title of Presentation	Speaker	Organization
Track 1: Cyber Testing Systems of Systems				
Track 1st Chair: Jeffrey McNeil, PhD - Clemson University				
Track 2nd Chair: Mr. Billy Williams - KBRWyle				
2:00 PM	Lake Audubon	<i>Automated Attack Framework for Test & Evaluation (AAFT)</i>	Mr. Andrew Shaffer	ARL Penn State
2:30 PM		<i>Improving Prediction/Detection of Cyber Attacks Using Robust Data Mining Methods</i>	Thomas A. Donnelly, PhD, CAP	SAS Institute, Inc.
3:00 PM		<i>Just How Much Effort is Required to Assess Cyber in a Complex System of Systems?</i>	Mr. Hank Steinfeld Ms. Paola Pringle	Naval Air Systems Command
Track 2: Modeling and Simulation for T&E				
Track 1st Chair: Mr. Phil Hallenbeck, CTEP - The MITRE Corporation				
Track 2nd Chair: Mr. Pete Crump, CTEP, PMP - Georgia Tech Research Institute				
2:00 PM	Lake Thoreau	<i>The "Power" of Risk-Based VV&A</i>	James N. Elele, PhD	NAVAIR
			Mr. David H. Hall	SURVICE Engineering
2:30 PM		<i>Challenges in Validating Complex Large-Scale Simulations for Operational Test</i>	Karl Kushner, PhD	Institute for Defense Analyses
			Jay Smith, Ph.D. Ben Lambert, Ph. D. Mr. Jeremy Smith	
3:00 PM	<i>Integrated Planning of Tactical, Test Support, and Tactical Engagement Networks (IPT3N)</i>	Mr. Mike DiGennaro	US Army Operational Test Command	
Track 3: Autonomous Systems Test & Evaluation				
Track 1st Chair: Mr. Christopher Mazur - TRMC				
Track 2nd Chair: Mr. Thomas O'Brien - TRMC				
2:00 PM	Reston A/B/C	<i>Simulation, Experimentation, and Assessment for Collaborative Autonomy in Unmanned Teams</i>	Mr. Don Davis	GTRI
2:30 PM		<i>T&E of Autonomous Systems: Challenges and Opportunities of Evaluating Trust</i>	Mr. Donald Strausberger	GTRI
3:00 PM		<i>TBD</i>		
Track 4: Big Data Analytics for T&E				
Track 1st Chair: Ed Powell, PhD - Ed Powell Consulting, LLC				
Track 2nd Chair: Mr. Thomas Treakle - DelliEMC				
2:00 PM	Lake Anne	<i>Data Analytics for the T&E Enterprise</i>	Mr. Ryan Norman	TRMC
2:30 PM		<i>Test Resource Management Center Big Data Analytics / Knowledge Management Architecture Framework Overview</i>	Ed Powell, PhD	Ed Powell Consulting
3:00 PM		<i>Data Science and Its Relationship to Test & Evaluation</i>	Mark J. Kiemele, PhD	Air Academy Associates
Track 7: Software Test Systems and Best Practices for T&E				
Track 1st Chair: Mr. Bruce Einfalt - Applied Research Laboratory/PSU				
Track 2nd Chair: Mr. Antwan Phan - SPAWAR				
2:00 PM	Town Center A/B	<i>Operational Testing of Agile programs in a time of change at DHS</i>	Mr. Wayne Dumais	DHS, DOT&E
2:30 PM		<i>Automated Software Testing Best Practices and Framework</i>	Mr. Jim Simpson	JK Analytics
3:00 PM		<i>Best Test Strategies When Setup is Expensive or Time Consuming</i>	Mr. Jim Simpson	JK Analytics

3:30 p.m. **Break with Exhibitors**

2017 PROGRAM GUIDE

**WEDNESDAY, OCTOBER 4TH – SYMPOSIUM DAY TWO
(EXHIBIT HALL OPEN 7:00 A.M. TO 4:00 P.M.)**

4:00 p.m. – 5:30 p.m. **Technical Track Sessions**

<u>Time</u>	<u>Room</u>	<u>Title of Presentation</u>	<u>Speaker</u>	<u>Organization</u>
Track 1: Cyber Testing Systems of Systems				
Track 1st Chair: Jeffrey McNeil, PhD - Clemson University				
Track 2nd Chair: Mr. Billy Williams - KBRWyle				
4:00 PM	Lake Audubon	<i>DECRE C2IS environment and activities</i>	Mr. Rod Hallum	JS J6
4:30 PM		<i>TBD</i>	Mr. Dave Aland	DOT&E
5:00 PM		<i>TBD</i>		
Track 2: Modeling and Simulation for T&E				
Track 1st Chair: Mr. Phil Hallenbeck, CTEP - The MITRE Corporation				
Track 2nd Chair: Mr. Pete Crump, CTEP, PMP - Georgia Tech Research Institute				
4:00 PM	Lake Thoreau	<i>TRMC LVC Framework</i>	Mr. Ryan Norman	TRMC
4:30 PM		<i>New Simulation Techniques for Warfighter Systems T&E</i>	Mr. Gilbert Torres	TRMC T&E/S&T
5:00 PM		<i>Modeling and Simulation for Undersea System Concept Development, Test, and Evaluation</i>	Ms. Marsha Perini	ARL Penn State
Track 4: Big Data Analytics for T&E				
Track 1st Chair: Ed Powell, PhD - Ed Powell Consulting, LLC				
Track 2nd Chair: Mr. Thomas Treacle - DelliEMC				
4:00 PM	Lake Anne	<i>DOE vs Big Data Analytics: Synergists or Antagonists</i>	Mark J. Kiemele, PhD	Air Academy Associates
4:30 PM		<i>Big Data in Test and Evaluation</i>	Mr. James Feight	Aberdeen Test Center
5:00 PM		<i>TBD</i>		
Track 6: T&E/S&T Innovations and Emerging Threats				
Track 1st Chair: Mr. Geoff Wilson, TRMC				
Track 2nd Chair: Mr. Andrew Shaffer - Applied Research Laboratory/PSU				
3:30 PM	Grand Ballroom A	<i>A Graded Approach to T&E of Counter-Unmanned Aerial Systems</i>	Mr. Camron Kouhestani	Sandia National Laboratories
4:00 PM		<i>Certification and Evaluation Approach for Counter Unmanned Aerial Systems</i>	Mr. Camron Kouhestani	Sandia National Laboratories
4:30 PM		<i>Development of a New Test and Evaluation Capability to Assess Survivability in Under-Body Blast Events</i>	Mr. Frederick Hughes	US Army Research Laboratory
			Ms. Patricia Riipa	Strategic Communications
		Mr. Michael Landers	PdM Medical Simulation	
Track 8: International Partnering in T&E				
Track 1st Chair: Mr. Greg Simmons, Department of Homeland Security				
Track 2nd Chair: TBD				
4:00 PM	Grand Ballroom C	Mr. Neil E. Meister	Technical Director for Polar Icebreaker Acquisition Program	United States Coast Guard (CIV)
4:30 PM		James P. Millan, PhD	Director of Research and Development Ocean	Coastal and River Engineer
5:00 PM		<i>TBD</i>		

THURSDAY, OCTOBER 5TH – SYMPOSIUM DAY THREE

Plenary Session

7:45 a.m. ITEA Annual Meeting: **Mr. Gene Hudgins** – ITEA President, KBRWyle

8:00 a.m. Keynote Speaker: **Mr. Paul Mann** – Principal Director (Acting), TRMC

8:30 a.m. **Cybersecurity Panel**

Chair: **Mr. William Redmond** – Former SES, DoD

Panelists:

K. Mitch Crosswait, PhD - Deputy Director, Net-centric, Space and Missile Defense Systems Office of the Secretary of Defense-Director, Operational Test and Evaluation

Mr. Rick Quade - N94B, OPNAV

Paul Waters, PhD - Technical Director, 412 Test Engineering Group

Mr. James Wells - Deputy Director, Cyberspace & Enterprise Programs, DHS Office of T&E

9:30 a.m. **Break**

10:00 a.m. Featured Speaker: **Ms. Denise De La Cruz** – Deputy Director T&E Range Oversight, TRMC

10:30 a.m. **Space Panel**

Chair: **Mr. Steve Kremer** – Advanced Projects Office, NASA/GSFC’s Wallops Flight Facility

Panelists:

Robert L. Bayt, PhD - Verification and Validation Manager, NASA Commercial Crew Program

Mr. Daniel Hicks – CEO, Spaceport America

Robert E. Lindberg Jr., Eng.Sc.D. - Vice President, Products and Programs, Vector Launch

Noon Closing Keynote: **Mr. David W. Duma** – Principal Deputy Director, OT&E

12:45 p.m. Closing Remarks: **Mr. Erwin Sabile** – Symposium Chair, Booz Allen Hamilton

1:00 p.m. Symposium Adjournment

1:00 p.m. *Certified Test and Evaluation Professional Examination Session*

1:00 p.m. Post-Symposium Tutorials – Next Page

THURSDAY, OCTOBER 5TH – POST–SYMPOSIUM TUTORIALS
(NOTE: SEPARATE REGISTRATION FEE REQUIRED)

1:00 p.m. – 5:00 p.m. Afternoon Tutorials

Planning and Executing Cyber Table Tops, Facilitator Training

Instructor: **Ms. Sarah Standard** – Cybersecurity/ Interoperability Technical Director, Office of the Secretary of Defense, AT&L, DASD (DT&E), and **Ms. Christa Pettie** - Cybersecurity Systems Analyst, OSD AT&L TRMC

The primary objective of the Cyber Table Top (CTT) Facilitator Training Workshop is to build the knowledge, skills and abilities that will allow trainees to successfully construct, coordinate, organize, and execute a Cyber Table Top (CTT) exercise. The primary audience for this training are those personnel who will facilitate and moderate CTT's for their program, command. The training will include tips, tools, and resources for CTT facilitators as well as a practical example of the process and outputs.

Real-World DOE and Modern Design and Analysis Methods

Instructor: **Thomas A. Donnelly, PhD** – CAP, SAS Institute Inc.

Part 1: Custom DOE – Making Your Design Fit the Problem. This tutorial will present solutions to real-world Design of Experiment (DOE) problems. You will learn how to treat incombination, factors of the following types: continuous/quantitative, categorical/qualitative, discrete numeric, mixture, covariate, blocking, and hard-to-change. It will demonstrate how to constrain design regions. Algorithmic custom DOE is the most efficient way to develop accurate and useful models of complex real-world processes.

Part 2: Using Definitive Screening Designs to Get More Information from Fewer Trials. Learn to use the new Definitive Screening Design (DSD) method of Design of Experiments. DSDs not only efficiently identify important factors but can often support second order predictive models. For the same number of factors three-level DSDs are often smaller than popularly used 2-level fractional-factorial (FF) designs yet yield more information especially about curvature for each factor. A case

study will be shown in which a 10-factor process is optimized in just 24 trials. In cases where too many factors are significant and the design can't collapse into a one-shot design, existing trials can economically be augmented to support a response-surface model in the important factors.

Part 3: Strategies for Analyzing Modern Screening Design of Experiments. The new Definitive Screening Designs (DSD) provide clean estimates of all main effects and squared effects for the design factors. This leads to saturated or nearly saturated models and the potential to falsely identify lower power squared terms as important. Effective strategies for analyzing these designs are reviewed to build a consensus model from the data. Plus, a newly developed (2015) method for robustly determining the most likely model will be featured. In this tutorial, we examine several strategies for analyzing DOE data sets. Actual vs. Prediction plots with checkpoints can be used to help choose models.

Test and Evaluation Science and Technology

Instructor: **Mr. George Rumford** – Deputy Director, Major Initiatives and Technical Analyses, DoD TRMC, AT&L, and Program Manager for the T&E/S&T Program

The T&E/S&T Program develops test technologies that will enable future test capabilities to characterize and optimize the performance of emerging warfighting systems, being developed to advance the third offset strategy. Technology areas of focus include autonomy, electronic warfare, cyber warfare, future computing, micro-electronics, hypersonics, directed energy amongst others. This tutorial provides the key attributes of a successful test technology development project. Attending this session will help those unfamiliar with the T&E/S&T Program develop test technology solutions that satisfy T&E needs. The course will also discuss how to structure a test technology project to assess technology maturation from concept exploration, through engineering, integration and experimentation, and ultimately reaching technology transition.

The ITEA Journal of Test and Evaluation Themes for 2016 – 2019

Authors can submit articles for submission with standard review and editing or for the lengthier ITEA peer review or referee processes. Please consider writing an article, share this document with coworkers, and provide feedback on the themes.

Articles of General Interest in Any Issue. Articles of general interest to ITEA members and *The ITEA Journal* readers are always welcome and authoring these articles is a great way to contribute to our industry.

Articles needed by *The ITEA Journal* include specialty features, each 2-3 pages long:

- **Book Reports** for T&E or related topics such as systems engineering, scientific principles, and acquisition.
- **Featured Capability** describes unique, innovative capabilities; demonstrates how they support T&E.
- **Historical Perspectives** recall how T&E was performed in the past or a significant test or achievement, often based on personal participation in the “old days” of T&E.
- **Tech Notes** discusses innovative technology that has potential payoff in T&E applications or could have an impact on how T&E is conducted in the future.
- **Cultivating the T&E Workforce** addresses the future of T&E by looking for ways to encourage students to pursue and remain in Science, Technology, Engineering; and Mathematics courses and majors, and for innovations in professional education for the T&E workforce.
- **Scientific Methods in T&E** solicits articles on innovations in statistical/mathematical methods for T&E.
- **Peer-Reviewed Articles.** ITEA members may submit articles designated by the author(s) to be peer-reviewed. The process usually takes 30 extra days. These peer-reviewed articles will be highlighted in *The ITEA Journal*; this new opportunity for authors offers more value to their published article.
- **Refereed Articles.** ITEA members may submit articles designated by the author(s) to be refereed. The process may require several extra months. These refereed articles will be highlighted in *The ITEA Journal*; this new opportunity for authors offers more value to their published article.

Submission. *The ITEA Journal* offers a forum for sharing knowledge and ideas crucial to our changing T&E workforce. Please submit your contributions today to journal@itea.org, attention: Publications Chair. Manuscript guidelines are found at www.itea.org under the Share and Publications tabs. Steve Gordon, PhD (steve.gordon@gtri.gatech.edu, journal@itea.org)

Upcoming Themes

Inter-Agency and International T&E (Issue 37-2, June 2016). Improved transportation and communications systems worldwide have impacted our leisure and business activities. The improved connectivity and shared needs across countries, coalitions, and operations have also increased the desire for collaborative testing internationally and inter-agency testing within countries. Shared T&E environments and scenarios across homeland security, law enforcement, and defense will become commonplace. Likewise, T&E related to airspace control will include the Federal Aviation Authority, the National Air and Space Agency, homeland security, and defense. Sharing the international T&E infrastructure and expertise will likely benefit of all countries involved. Articles about T&E of systems intended to operate worldwide and/or in support of missions that cross the boundaries of homeland security, law enforcement, and national defense will be of interest for this issue. (**Manuscript deadline: March 1, 2016**)

Changes to Developmental and Integrated Testing (Issue 37-3, September 2016). Smooth handoffs are likely to save time and money and improve quality, suitability, and effectiveness. This issue seeks articles that cover current and future plans for changes to developmental testing and articles on how developmental and operational/acceptance testing are being integrated to allow smoother handoffs that improve testing, save time and funding, and/or improve the product. This topic seeks articles beyond the Department of Defense; so, articles from industry, other federal agencies, and international partners will be welcomed. The theme of this issue could easily be reworded as “How can early testing assist in the transition to most efficiently facilitate full independent testing?” or “How does final independent testing collaborate with early developmental testing to ensure a smooth transition and effective and efficient testing?”. (**Manuscript deadline: June 1, 2016**)

Statistical Methods in T&E (Issue 37-4, December 2016). Mathematical and statistical methods have traditionally been used in testing. Some new approaches in using statistical methods allow testers to estimate how much testing is enough. Too little testing and too much testing waste time and money. Application of statistical methods coupled with disciplined up-front analyses, may help increase the scientific unpinning of tests. Up-front analyses include following accepted processes to determine outputs, determining how to measure the outputs accurately, identifying what super-set of inputs may affect the outputs, determining the critical few inputs and how to measure the inputs accurately, setting statistical confidence, evaluating the design for statistical power, and making trade-offs. Designation of standard operating procedures and conducting measurement system analyses help reduce unnecessary noise and maintain statistical power. Upfront analyses also include verification and validation of requirements and verification, validation, and accreditation of modeling and simulation to support the test. (**Manuscript deadline: September 1, 2016**)

Blending Systems Engineering, Lifecycle Support, Reliability, and Testing (Issue 38-1, March 2017). These activities are part of an integrated, solid T&E process. Systems engineering provides the process and tools to build the right, effective product in the best way. Reliability strives to develop a system that is available and suitable for intended use and resilient to disruption. Lifecycle support looks at maintainability and supportability with long-term ownership costs in mind. Testing makes sure these requirements and others are satisfied by the system as it is designed and built. Blending these initiatives and their development targets into an integrated T&E program could help us field the right system for the user. Invited papers could include discussions of success stories, lessons learned, drawbacks, benefits, good intentions gone awry, and alternative views. (*Manuscript deadline: December 1, 2016*)

Training the Future T&E Workforce (Issue 38-2, June 2017). Test and evaluation over the next decade will need a workforce of professionals from many academic disciplines. The academic majors will certainly include science, technology, engineering, and math (STEM); yet, management, communications, psychology, and other types of majors also may be needed for the T&E profession. We will need a steady supply of the right academic majors from our technical schools, colleges, and universities, and we will need initial training for the incoming workforce to be ready to become T&E professionals. The need for an inflow of new talent suffers from a constrained supply and competes with many demands for the same disciplines from industry, academia, and other parts of the government. Increasing the throughput of the right new talent would help considerably. And, innovative ways to attract the new workforce, provide recurring training to the existing workforce, and fund career enhancement will help T&E retain the workforce needed. (*Manuscript deadline March 1, 2017*)

T&E for Enhanced Security. (Issue 38-3, September 2017). This issue seeks articles about testing for enhanced security in the land, sea, air, space, and cyber domains. The theme includes testing for cyber security and effectiveness and testing by homeland security and law enforcement of systems to protect water, power, natural gas/petroleum, food, pharmaceuticals, transportation, and communications processing and distribution systems. The United States National Guard, the Department of Homeland Security, and State homeland security components have unique testing needs and experiences, and articles on these topics are encouraged. How do the Federal Aviation Authority and the National Aeronautics and Space Administration collaborate on testing the nation's airspace? How are robotic vehicles tested? Articles from international partners are also encouraged in these listed areas and in the areas of national defense. (*Manuscript deadline: June 1, 2017*)

Testing Using Facilities Around the World (Issue 38-4, December 2017). Where in the world are the valuable, unique T&E facilities and other resources that test planners should be aware of? Our T&E infrastructure is regularly evaluated for downsizing, improvement, or changes in ownership. Obviously, the right footprint of T&E infrastructure depends on the tests in the pipeline and future systems in design. How do we know what and how much is necessary? Can we share government, industry, and academia facilities within and across country boundaries? Would this type of sharing cause conflict of interest issues? Will overlap of contractor testing, developmental testing, and operational testing reduce the demand on test infrastructure? Can earlier developmental testing in representative operational environments and earlier integrated testing reduce the load on test infrastructure? Will sharing (or dual use) of training and test venues help in use of limited infrastructure? (*Manuscript deadline: September 1, 2017*)

Unattended Vehicle Testing (Issue 39-1, March 2018). For these systems, we must test and train as we fight. Unattended vehicles fly reconnaissance, target location, and combat sorties. They fly in combat and public airspaces. They travel on the ground, in the air and space, on the water, and under water on a variety of missions. Unattended vehicles may be fully controlled by humans, semi-automated, or fully autonomous individually or in dissimilar teams. They have been demonstrated to operate in autonomous swarms. How have we conducted T&E of these systems in the past? Are there best practices or lessons learned? Are there any guidelines for how to test the semi-automated and autonomous behaviors in representative operational environments? How can we test these systems in degraded environments to determine operational robustness to combat conditions and to cyber degradations? (*Manuscript deadline: December 1, 2017*)

Test and Evaluation of Hypersonic Systems (Issue 39-2, June 2018). Two of the hypersonic systems technological challenges are to advance hypersonic technology itself, staying ahead of rivals, and to develop countermeasures for use in combat situations when an adversary employs such technology against our systems. By the very nature of these hypersonic systems, testing and evaluation will have very significant challenges – some yet to be adequately described. These challenges include having the range space, instrumentation, and data capture systems to conduct the testing live or having the trusted simulations to conduct the testing in a live-virtual-constructive environment. Secondly, testing the countermeasures on both sides of engagements may be a challenge. It should be noted that hypersonic speed provides potential improvements in operational flexibility for accomplishing the mission (such as short notice urgent space launch or engaging time-critical targets), diminishing the effectiveness of current detection and countermeasures systems, and potential reductions in operational cost to accomplish the mission. Because of hypersonics, we will need testing improvements in aerothermodynamics, materials science, hypersonic navigation, guidance and control systems, endo-atmospheric and exo-atmospheric flight dynamics, instrumentation including telemetry, and extremely large data flows. (*Manuscript deadline: March 1, 2018*)

Success Stories in T&E. (Issue 39-3, September 2018). This is a broad theme for articles that describe how T&E has helped to improve systems that would have otherwise been less effective, safe, or supportable. But for the improved testing regimen, under which this system was evaluated, lives would have been lost, costs would have increased, and/or battles would have been lost. For this issue, we will mostly focus on the T&E experiences where the testing helped influence product changes that made the product better in terms of cost, safety, or effectiveness. Feedback from tests at or before the design phase can be implemented with minimal cost to the program and can help improve the cost, suitability, and effectiveness of the system. Product or system modifications because of feedback from tests after the development phase of acquisition may cost more, but the test results later in a program are often essential to building the right product. This issue is also seeking examples of tests where, for some reason, systems were fielded even though they were lacking in effectiveness, suitability, or resiliency. So, we would also welcome “Less than Successful Stories in T&E” in this issue as well. Examples of how things have gone wrong help us understand the importance of making sure things go right. (*Manuscript deadline: June 1, 2018*)

T&E of Information Assurance, Information Security, and Cyber Readiness (Issue 39-4, December 2018). Key information passed through network connections improves the speed and lethality of combat operations; yet, use of networks opens doors to vulnerabilities. Network connections for home computers, smart phones, social media, and entertainment add enjoyment; yet, ease of use often equates to increased ease of misuse and scamming. Systems that support the military, our finances, our health records, and our other personal information must pass information assurance, information security, net readiness, and cyber readiness tests. Yet, these tests, when passed, do not provide 100% assurance of protection. Systems and the networks that connect them are subject to attacks from many sources; however, the goal of the attack is nearly always to take something valuable. Money, personal information, trust, freedom, military information and plans, or intellectual property are often taken with very minimal effort and cost. How much testing is required to provide an acceptable level of enduring protection to expected attacks? (*Manuscript deadline: September 1, 2018*)

Statistical Methods in T&E (Issue 40-1, March 2019). Mathematical and statistical methods have traditionally been used in testing. Some new approaches in using statistical methods provide a tool to allow testers to estimate how much testing is enough. Too little testing and too much testing waste money. Application of statistical methods coupled with disciplined up-front analyses, may help increase the scientific unpinning of tests. Up-front analyses include following accepted processes to determine outputs, determining how to measure the outputs accurately, identifying what super-set of inputs may affect the outputs, determining the critical few inputs and how to measure the inputs accurately, setting statistical confidence, evaluating the design for statistical power, and making trade-offs. How are designation of standard operating procedures and conducting measurement system analyses related to reducing unnecessary noise and maintaining statistical power? Would upfront analyses also include verification and validation of requirements and verification, validation, and accreditation of modeling and simulation to support the test? What are the consequences of unnecessary noise in the systems that support testing? How can we increase statistical power of tests without increasing testing? (*Manuscript deadline: December 1, 2018*)

Certified Test & Evaluation Professionals

Allan V. Alfafara, CTEP - Northrop Grumman Aerospace Systems

MAJ Cornelius Allen, USA, CTEP - PEO Aviation

Dana Allen, CTEP - Air Force Space and Missile Systems Center

Benjamin Andersen, CTEP - Modern Technology Solutions, Inc.

Rebecca L. Badgley, CTEP - Advanced Management Strategies Group

Suzanne M. Beers, PhD, CTEP - The MITRE Corporation

David Scott Bough, CTEP - Prevailance, Inc.

Richard Boyer, CTEP - Scientific Research Corporation (SRC)

Rebecca Bradshaw, CTEP - TransCore

E. Wyatt Brigham, CTEP - Northrop Grumman Aerospace Systems

C. David Brown, PhD, CTEP - DT&E

John Burke, CTEP - JRAD

Thomas Cash, CTEP - CGI Federal

Peter H. Christensen, CTEP - The MITRE Corporation

Peter G. Crump, CTEP - Georgia Tech Research Institute (GTRI)

Paul R. Dailey, PhD, CTEP - Johns Hopkins University Applied Physics Lab

Michael Flynn, PhD, CTEP - Defense Acquisition University (DAU)

Christine Fuentes, CTEP - The MITRE Corporation

Ralph R. Galetti, CTEP - Boeing-SVS.

John Geskey, CTEP - Applied Physics Laboratory/The Johns Hopkins University

Melforde Granger, CTEP - Department of Defense

Greg Griffitt, CTEP - Avian Engineering, LLC

Phil Hallenbeck, CTEP - MITRE Corporation

Brian Paul Hodgkinson, CTEP - Northrop Grumman Aerospace Systems

Garfield S. Jones, CTEP - Department of Homeland Security

Karen Kissinger, CTEP - TASC, Inc.

Michael Lilienthal, PhD, CTEP - EWA Government Systems, Inc.

Eric Lowy, CTEP - FAA

Charles McKee, CTEP - T&E Executive

Lt Col. Martin "Marty" J. Mears, CTEP - Alpha Omega Change Engineering (AOCE)

Henry C Merhoff, CTEP - Louis P. Solomon Consulting Group

Chelsea Prendergast, CTEP - Joint Research and Development, Incorporated

Joseph F. Puett III, CTEP - ManTech International

Erwin Sabile, CTEP - Booz Allen Hamilton

Thomas Sachse, CTEP - PEO SUB

Mike Short, CTEP - G2, Inc.

Anthony Shumskas, CTEP - TASC, Inc.

Jody South, CTEP - AMERICAN SYSTEMS

Keith Sumner, CTEP - Booz Allen Hamilton

William J. Swank, CTEP - DASD(DT&E)

Miles Thompson, CTEP - Georgia Tech Research Institute (GTRI)

Steven Tran, CTEP - Northrop Grumman Aerospace Systems

Gregory Turner, CTEP - The MITRE Corporation

James Watson, PhD, CTEP - JRAD

David Zehr, CTEP - 419 FLTS/DOO

Professional Certification Versus “Certificate” Programs

ITEA administers, manages, and awards the Certified Test and Evaluation Professional (CTEP) credential, which provides significant benefits to T&E professionals, organizations, and their customers. More than 500 T&E SMEs have been involved in the development of this credential. These SMEs—T&E executives, managers, supervisors, individual contributors, and technicians come from a diverse cross-section of the T&E profession, representing industry, government, academia, laboratories, ranges, weapon systems, information technology, transportation, electronic communications, consumer electronics, and more.

A “professional certification credential” is quite different from the “certificate” programs that are currently available to test professionals. “Certificate” programs award a certificate of completion or achievement to individuals after they successfully complete a course of study or meet some minimum requirements. In contrast, a professional certification credential:

- Requires periodic submission for re-certification to demonstrate continued currency in the profession, full time employment, and continuing education.
- Awarded based on the candidate’s passing a competency exam, written and/or observational, and not related to courses completed.
- Bestows upon an individual the right to use the credential’s designation in conjunction with their name (e.g., CSE, CPA, or CPM) after an assessment and verification that they have met predetermined and standardized criteria.
- Confers occupational identity and provides a method for maintaining quality standards of knowledge and performance, and stimulates continued self-improvement.
- Provides differentiation among test professionals, using standards developed through a consensus-driven process and based on existing legal and psychometric requirements.
- Requires adherence to a Professional Code of Ethics.

PURPOSE OF THE CTEP CREDENTIAL

- To recognize individuals who demonstrate:
 - KNOWLEDGE, SKILLS, AND ABILITIES to meet the minimum level of competency identified by T&E subject-matter experts (SMEs).
 - COMMITMENT to maintain currency in the field.
 - DEDICATION to advancing the profession.
- To develop and promote common standards, principles, procedures, processes, and terms for the T&E profession.
- To support professional development and education to enhance the KSAs of T&E professionals

CTEP Examination Preparation

There is no specific exam preparation or professional development courses required to apply for the CTEP examination, and the exam is not based on any single reference. Candidates need to be familiar with the topics listed on the CTEP Table of Specifications (aka Exam “Blueprint”) and their application. The CTEP Examination pertains to a common body of knowledge related to the practice of test and evaluation. A well-rounded period of professional practice is the best preparation for the exam. However, candidates are encouraged to supplement their education and experience by reviewing test and evaluation resources—particularly those focusing on areas in which they may be less skilled or experienced.

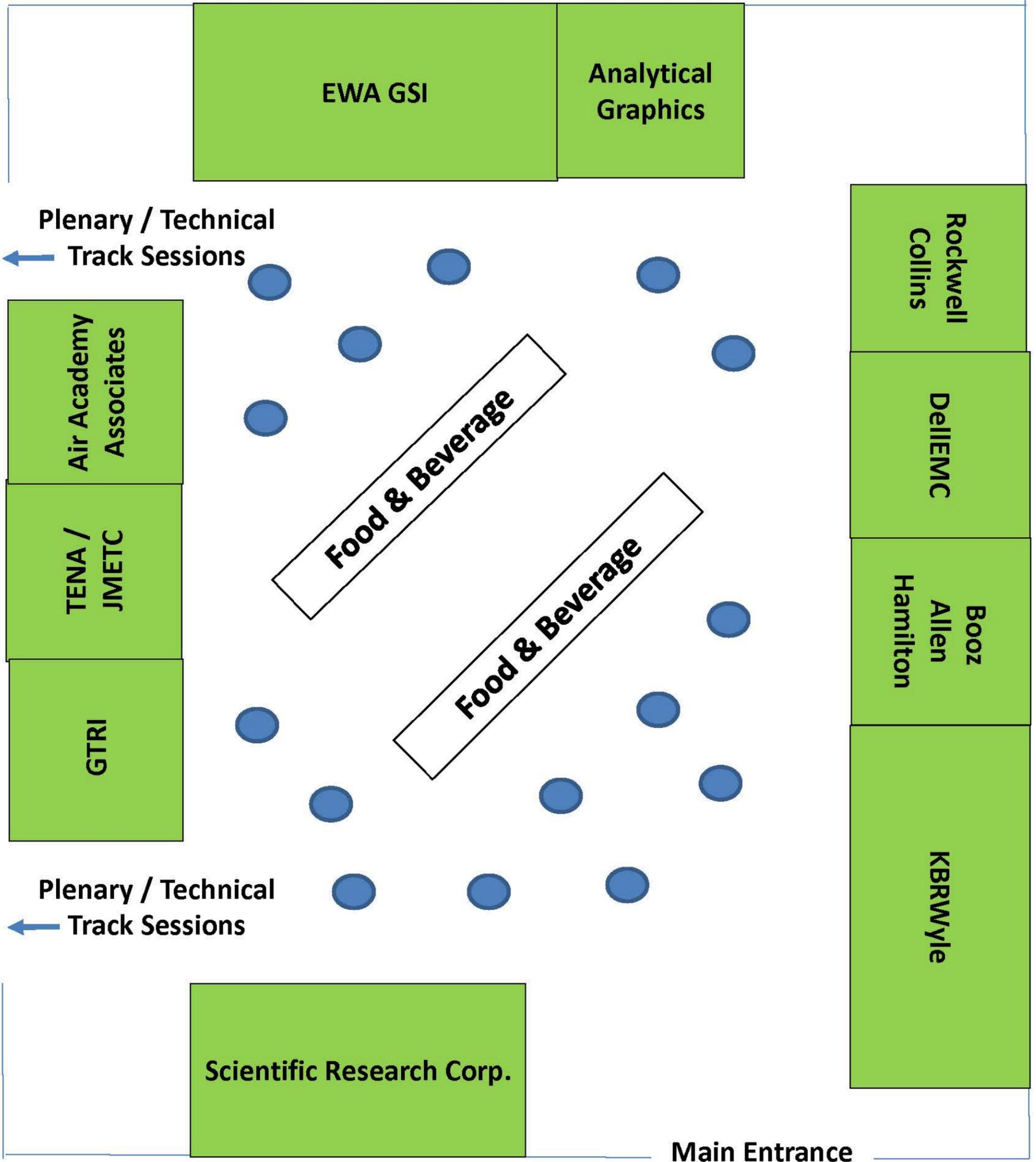
CTEP Examination

The CTEP examination was developed by SMEs under the guidance of psychometricians (experts in measurement and test development) and measures the knowledge, skills, and abilities required to perform competently as a test and evaluation professional. ITEA follows best practices in all its test development activities to ensure those who pass the exam meet requirements to safely and competently perform test and evaluation tasks. The examination consists of 200 questions with a four-hour timeframe for completion. Only correct answers are counted. The exam’s 200 questions include twenty questions that are potential test questions and included for analysis purposes. This is standard practice in the field of testing and does not have any effect on the outcome of the exam. The passing score for the exam is 70% (126 correct out of 180 scored items). About 66% of the candidates taking the exam pass.

SYMPOSIUM EXHIBIT HALL

34th International Test and Evaluation Symposium

Hyatt Regency Reston, VA ~ October 2-5, 2017



Exhibitor Profiles

Air Academy Associates

Air Academy Associates is a leader in providing continuous improvement methods to industry and government through consulting, training and coaching services, textbooks, training aids and software. Since 1990 we have assisted clients in reducing variation and creating Better, Faster, and Lower Cost products and services. Emphasis in the TEST and Evaluation Community resides in our expertise in Design of Experiments.

Point of Contact: Mrs. Kathi Swagerty
E-mail: kswagerty@airacad.com

Analytical Graphics, Inc.

AGI develops commercial modeling and analysis software for the aerospace, defense and intelligence communities. AGI's core product suite, Systems Tool Kit (STK), is a flexible environment that enables scientific test and evaluation planning methods and supports the full life cycle of T&E requirements, planning, event design, execution and post-flight activity.

Point of Contact: Mr. Joe Murphy
E-mail: jmurphy@agi.com

Booz Allen Hamilton

We are a global firm of 22,600 diverse, passionate, and exceptional people driven to excel, do right, and realize positive change in everything we do. We bring bold thinking and a desire to be the best in our work in consulting, analytics, digital solutions, engineering, and cyber, and with industries ranging from defense to health to energy to international development. We celebrate and value diversity in all its forms; it's something we truly value as a multicultural community of problem solvers. We believe in corporate and individual citizenship that make our communities better places for all. We have one guiding purpose—to empower people to change the world. Our founder, Edwin Booz said it best: "Start with character... and fear not the future." We bring a ferocious integrity to change the status quo, today and throughout our more than 100-year history. Each day, we imagine, invent, and deliver new ways to better serve our employees, our clients, and the world.

Point of Contact: Mr. Erwin Sabile
E-mail: sabile_erwin@bah.com

DellEMC

EMC Isilon is the leader in management of "Big Data". With the ability to capture and play back files that range from 18TB up to 20 PB in a single file system, Isilon is very easy to use, manage and maintain. With no RAID Groups, Volumes, or LUN's to manage, you use minimal labor.

Point of Contact: John Masin
E-mail: john.masin@isilon.com

EWA Government Systems, Inc.

EWA Government Systems is a recognized leader in cyber defense, cyber T&E, and threat simulator development. We excel at test planning, setup, and execution, autonomous calibrated instrumentation and real-time analysis, and final report preparation. Agile and responsive to customer needs, EWA GSI achieves success in a changing environment.

Point of Contact: Eileen Redd
E-mail: eredd@ewa.com

Georgia Tech Research Institute – GTRI

Georgia Tech Research Institute (GTRI) has extensive T&E capabilities covering a broad range of engineering and scientific disciplines, including tracking new technologies and their effect on T&E, planning and executing programs for the Operational Test Agencies, and providing T&E professional education courses, conferences, and workshops. Visit www.terec.gatech.edu for T&E course information.

Point of Contact: Miles Thompson
E-mail: miles.thompson@gtri.gatech.edu

KBRWyle

Wyle provides a wide range of test engineering services including: planning, test conduct, data management, analysis and reporting for the development and operational test and evaluation of major aircraft and weapons systems programs. Wyle also provides environmental testing for systems qualification and certification for equipment designed for space flight, high performance aircraft and other platforms.

Point of Contact: Katie Messer
E-mail: katie.messer@wyle.com

Rockwell Collins

Rockwell Collins is a pioneer in the design, production and support of innovative solutions for our aerospace and defense customers. Our expertise in range solutions, multi-level security, and high-throughput software defined datalinks, all integrated in an open architecture, is strengthened by our global service and support network spanning 150 countries.

Point of Contact: Mr. Lowell Buchholz
E-mail: Lowell.Buchholz@RockwellCollins.com

Scientific Research Corporation – SRC

Scientific Research Corporation is an advanced engineering company providing innovative solutions to the U.S. Government, private industry, and international markets. We are focused on providing the warfighter information, communications, intelligence, electronic warfare, simulation, training, and instrumentation systems through our engineering, integration, testing, support, and research and development activities.

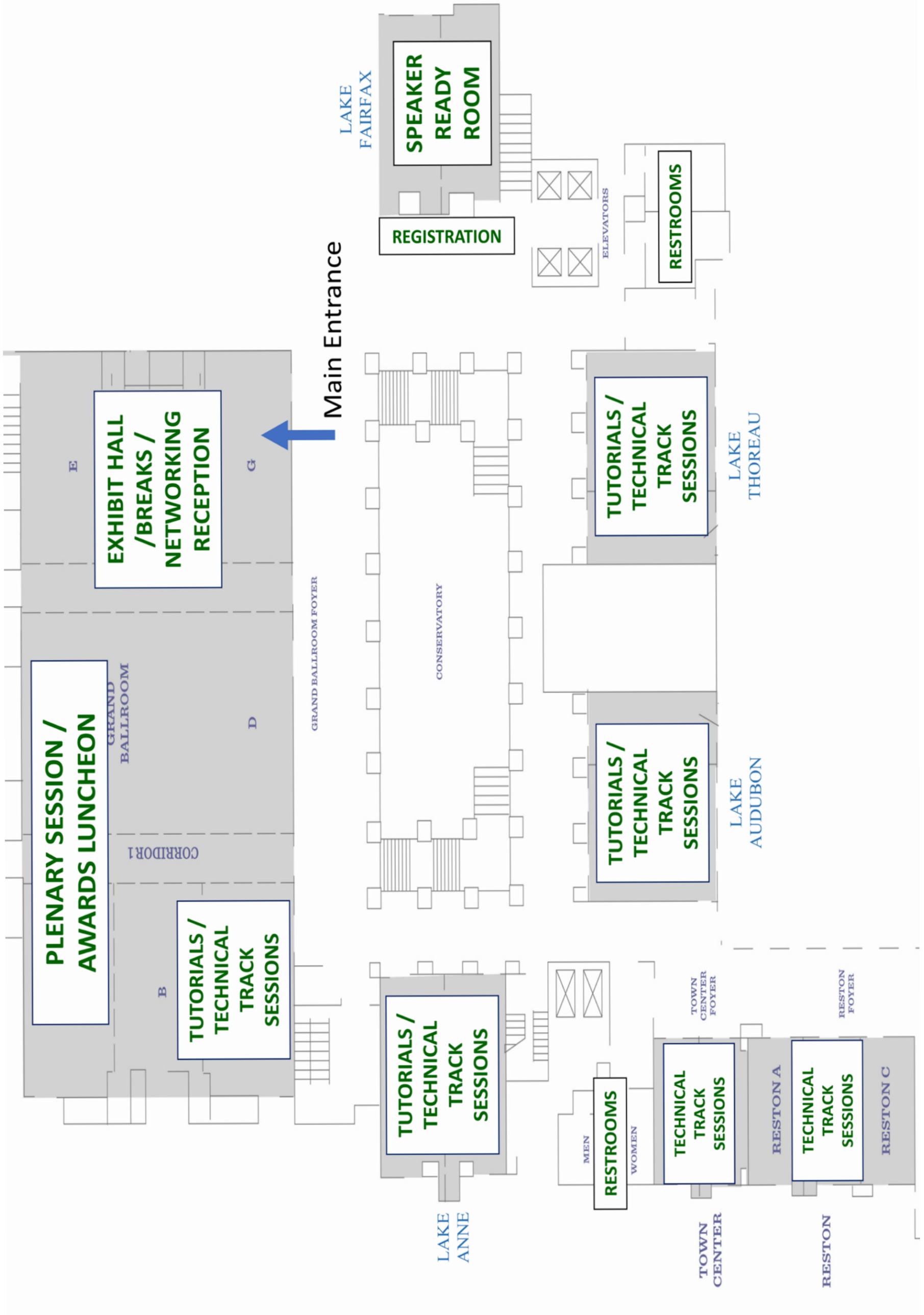
Point of Contact: Mark Brown, PhD
E-mail: mbrown@scires.com

TENA/JMETC

The US OSD Test Resource Management Center (TRMC) has developed a common architecture to support effective integration and reuse of testing, training, and simulation capabilities that require real-time collaboration between distributed computer systems. Through the establishment of the Test and Training Enabling Architecture (TENA), the interoperability and reuse of range assets are tremendously improved, thereby reducing development, operation, and maintenance costs of range systems. To further enable the distributed testing mission, the TRMC has built the Joint Mission Environment Test Capability (JMETC) to provide a persistent capability for linking distributed facilities, enabling DoD customers to develop and test warfighting capabilities in a Joint Context. Our TENA Adapter demonstration will illustrate how this technology can be used for the remote monitoring and control of range systems in a vendor agnostic manner.

Point of Contact: Mr. B. Gene Hudgins
E-mail: gene.hudgins@tena-sda.org

SYMPOSIUM MEETING ROOMS



Upcoming ITEA Education - Mark Your Calendars!

2017 Test Technology Review
*Disruptive Technology in
Test and Evaluation*

November 15 & 16, 2017
Dynetics Solutions Complex
Conference Facilities ~ Huntsville, AL
Hosted by the ITEA Rocket City Chapter

2018 Test Instrumentation Workshop

May 14 - Tutorials
May 15 & 16 - Plenary and Technical Sessions
Tuscany Inn and Suites
255 E. Flamingo Road ~ Las Vegas, NV
Hosted by the ITEA Antelope Valley and Southern
Nevada Chapters

**18th ITEA Engineering Workshop
and
2018 DEPS Directed Energy
T&E Conference**

January 16 - Tutorials
January 17 & 18 - Plenary and Technical Sessions
Sheraton Uptown ~ Albuquerque, NM
Jointly Hosted by the ITEA Roadrunner and White
Sands Chapters

**35th International Test and Evaluation
Symposium (2018)**

Nov 6 - Pre-Symposium Tutorials
Nov 7-9 - Symposium Plenary and Technical Sessions
Embassy Suites Mandalay Beach Hotel & Resort
Oxnard, CA
Jointly Hosted by the ITEA Channel Islands,
Antelope Valley, and Greater San Diego Chapters

--

2018 Cybersecurity Workshop
*Cybersecurity: From Requirements
to Test & Evaluation*

March 6 - Tutorials
March 7 & 8 - Plenary and Technical Sessions
Hilton Garden Inn
Fort Walton Beach, FL
Hosted by the ITEA Emerald Coast Chapter

**36th International Test and Evaluation
Symposium (2019)**

Dec 3 - Pre-Symposium Tutorials
Dec 4-6 - Symposium Plenary and Technical Sessions
Kauai Marriott Resort & Beach Club
Lihue, HI
Jointly Hosted by the ITEA Mid-Pacific
and Southern Cross Chapters

Schedule-at-a-Glance

MONDAY, OCTOBER 2

	7 AM - 5 PM	Lake Fairfax	Speaker Ready Room / Staff Office			
			REGISTRATION			
	1 PM - 5 PM	Grand Ballroom G	Exhibitor Set-Up			
<u>Session</u>	<u>Time</u>	<u>Room</u>	<u>Title of Presentation</u>	<u>Instructor</u>	<u>Organization</u>	
(Separate Requirements)	8 AM To Noon	Grand Ballroom A	Cybersecurity Test & Evaluation	Mr. Pete Christensen	Cyber Support to OSD Programs, The MITRE Corporation	
		Grand Ballroom B	How to build a Reliability Growth Program	Mr. Shawn Brady Mr. Wayne Martin	AMSAA, Center for Reliability Growth	
		Grand Ballroom C	Processes for Testing with International Partners	Ms. Gloria Deane Mr. Mitchell Dossett Mr. Robert Butterworth	International Programs, DOT&E	
		Lake Audubon	Testing 1, 2, 3	Mr. Matt Reynolds	Test and Evaluation Program Management	
	LUNCH on your own					
	1 PM to 5 PM	Grand Ballroom A	Test and Evaluation Across the Acquisition Lifecycle	Michael Flynn, PhD, CTEP	Defense Acquisition University	
		Grand Ballroom B	Data Science and Its Relationship to Test & Evaluation	Mark Kiemele, PhD	Air Academy Associates	
		Grand Ballroom C	Using TENA and JMETC to Reduce Risk, Saving Time and Money	Mr. Gene Hudgins	TENA and JMETC User Support Team Lead, KBRWyle	
		Lake Audubon	Identifying Requirements and Vulnerabilities for Cybersecurity	Michael Lilienthal, PhD, CTEP Mr. Patrick Lardieri	Director of Cyber and Navy Programs, EWA Cyber Focus Group Lockheed Martin	
		Lake Thoreau	The Art of Planning Preview T&E: Australian Techniques for Early Test Strategies for Technical Maturation and Risk Reduction	Keith Joiner, PhD	Senior T&E lecturer, University of South Wales Canberra	

2017 PROGRAM GUIDE

Schedule-at-a-Glance

TUESDAY, OCTOBER 3

	7 AM - 5 PM	Lake Fairfax	Speaker Ready Room / Staff Office				
			REGISTRATION				
	7 AM - 7 PM	Grand Ballroom G	Exhibit Hall Open				
<u>Session</u>	<u>Time</u>	<u>Room</u>	<u>Title of Presentation</u>	<u>Speaker</u>	<u>Title</u>	<u>Organization</u>	
Plenary	7:45 AM	Grand Ballroom D	Welcome	Mr. Gene Hudgins	President ITEA	KBR Wyle	
	7:50 AM		Opening Remarks	Mr. Erwin Sabile	Symposium Chair	Booz Allen Hamilton	
	8:00 AM		Opening Keynote	Mr. Dave Duma	Acting Director	Operational Test and Evaluation	
	8:45 AM		Guest Speaker	Steve Hutchison, PhD	Director of T&E DHS	DHS	
BREAK	9:30 AM	Grand Ballroom G	BREAK in Exhibit Hall				
Plenary	10:00 AM	Grand Ballroom D	Featured Speaker	J. Brian Hall, PhD	Acting DASD(DT&E), Deputy Assistant Secretary of Defense for Developmental Test and Evaluation	Office of the Under Secretary of Defense for AT&L	
	10:30 AM		Panel 1 - Acquisition & T&E Workforce				
			Chair: Mr. Wayne Dumais	Test Area Manager		Office of Test and Evaluation, Department of Homeland Security	
			Mr. James C. Cooke	Director		U.S. Army Evaluation Center	
			Mr. Omar Merced	Senior Electronics Engineer		FAA	
			Robin Poston, PhD	Professor and Dept Chair, Business Information & Technology, and Director		Systems Testing Excellence Program, University Memphis	
			Mr. Thomas Simms	Deputy Director, Policy and Workforce Development		DASD DT&E	
			Mr. Ken Stenfanak			DAU	
LUNCH	Noon	Grand Ballroom G	LUNCH in Exhibit Hall				
Plenary	1:00 PM	Grand Ballroom D	Panel 2 - DoD OTA Commander's Panel				
			Chair: Laura Freeman, PhD	Assistant Director of the Operational Evaluation Division at the Institute for Defense Analyses, DOT&E		Institute for Defense Analyses	
			RADM Paul Sohl	Commander		Operational Test & Evaluation Force (COMOPTEVFOR)	
			MG John W. Charlton	Commanding General		U.S. Army Test and Evaluation Command (ATEC)	
			Maj. Gen. Matthew H. Molloy	Commander		Air Force Operational Test and Evaluation Center (AFOTEC)	
COL Mark T. Brinkman	Director		Marine Corps Operational Test and Evaluation (MCOTE)				

Schedule-at-a-Glance

3:00 PM				
BREAK in Exhibit Hall				
Time	Room	Title of Presentation	Speaker	Organization
Track 1: Cyber Testing Systems of Systems				
Track 1st Chair: Jeffrey McNeil, PhD - Clemson University				
Track 2nd Chair: Mr. Billy Williams - KBRWyle				
3:30 PM	Lake Audubon	<i>Implementation Challenges for Risk Management Framework on RDT&E Systems</i>	Mr. Donald Paul Waters	412 Test Engineering Group
4:00 PM		<i>Cyber Operational Vulnerabilities Assessment (COVA) Process</i>	Mr. Scott "Gunner" Thompson	Director of Cyber and AF Programs
4:30 PM		<i>Self-Cleansing Intrusion Tolerance: A new approach to reduce the impact of data breaches</i>	Arun Sood, PhD	Geroge Mason University and SCIT Labs
Track 2: Modeling and Simulation for T&E				
Track 1st Chair: Mr. Phil Hallenbeck, CTEP - The MITRE Corporation				
Track 2nd Chair: Mr. Pete Crump, CTEP, PMP - Georgia Tech Research Institute				
3:30 PM	Lake Thoreau	<i>Surrogate Modeling of Stochastic Computer Simulation Data – Identifying Insurgents from a Helicopter Flying Surveillance</i>	Thomas A. Donnelly, PhD, CAP	SAS Institute, Inc.
4:00 PM		<i>Technologies for Interoperability of Live Fighter Platforms with Virtual & Constructive Simulations for Distributed Test</i>	Mr. Mark Phillips	Lockheed Martin
		Mr. Gilbert Torres	TRMC T&E/S&T	
4:30 PM		<i>Joining Forces Beyond Naval Aviation T&E</i>	Edward Powell, PhD	Ed Powell Consulting
	Mr. Hank Steinfeld	Naval Air Systems Command		
Ms. Paola Pringle				
Track 3: Autonomous Systems Test & Evaluation				
Track 1st Chair: Mr. Christopher Mazur - TRMC				
Track 2nd Chair: Mr. Thomas O'Brien - TRMC				
3:30 PM	Reston A/B/C	<i>Constrained Learning for Assured Autonomy</i>	John Sustersic, PhD	ARL Penn State
4:00 PM		<i>An Analysis of Autonomous Systems Test Methodology</i>	Mr. Jonathan Elliott	TRMC
4:30 PM		<i>Leveraging CRIIS for LVC testing in O/DT&E</i>	Mr. Jonathon Skarphol	Rockwell Collins
Track 5: Acquisition Reform in Today's T&E Environment				
Track 1st Chair: Mr. Peter De Salvo - The BOEING Company				
Track 2nd Chair: Mr. Karl King - TRIDEUM Corporation				
3:30 PM	Grand Ballroom C	<i>Driving a "Team of Teams" Mentality to Thrive in a Complex and Rapidly Changing Environment</i>	Mr. Paul McNamara	The Sente Group, Inc.
4:00 PM		<i>How T&E Functions in an Acquisition of Capabilities Environment</i>	Ms. Paola Pringle	Naval Air Systems Command
		Mr. John Auburn		
4:30 PM	<i>Removing Range Boundaries – The Importance of Developing Partnerships and Mobile Systems for "Range-Free" Testing</i>	Mr. Rob Vargo	Director, Atlantic Test Ranges, NAWCAD	
Track 7: Software Test Systems and Best Practices for T&E				
Track 1st Chair: Mr. Bruce Einfalt - Applied Research Laboratory/PSU				
Track 2nd Chair: Mr. Antwan Phan - SPAWAR				
3:30 PM	Town Center A/B	<i>I Don't Believe Your Company is Agile!</i>	Mr. Alex Martins	CA Technologies
4:00 PM		<i>Using Layered Model-Based Requirements to Achieve Continuous Testing</i>	Mr. Jeff Hughes	
		Mr. Alex Martins	CA Technologies	
4:30 PM	<i>Software Test Automation Engineering</i>	Mr. Andrew Pollner	ALPI/ASTQB/ISTQB	
5 PM - 7 PM	Grand Ballroom D/E/F/G	Mr. Kevin Gates	Professional Staff Member	House Armed Services Committee
		NETWORKING RECEPTION		

Schedule-at-a-Glance

WEDNESDAY, OCTOBER 4

<i>Session</i>	<i>Time</i>	<i>Room</i>	<i>Title of Presentation</i>	<i>Speaker</i>	<i>Title</i>	<i>Organization</i>		
	7 AM - 5 PM	Lake Fairfax	REGISTRATION					
			Speaker Ready Room / Staff Office					
	7 AM - 4 PM	Grand Ballroom G	Exhibit Hall Open					
Plenary	7:45 AM	Grand Ballroom D	Day 2 Remarks	Mr. Thomas Treakle	Symposium Technical Program Co-Chair	DellEMC		
				Mr. Bruce Einfalt	Symposium Technical Program Co-Chair	Applied Research Laboratory/PSU		
	8:00 AM		Keynote	Arun A. Seraphin, PhD	Professional Staff Member	Senate Arms Services Committee		
	8:30 AM		Featured Speaker	Mr. Jaime Figueroa	Deputy Director, WJ Hughes FAA Technical Center	Federal Aviation Administration (FAA)		
	9:00 AM		Panel 3 - Test Range Panel					
			Chair: Ms. Leslie Taylor	Naval Air Warfare Center Aircraft Division / Deputy Assistant Commander for Test and Evaluation	Naval Air Warfare Center Aircraft Division (NAWCAD)			
			Brigadier General Eric L. Sanchez	Commander	White Sands Missile Range (WSMR)			
			Brig. Gen. Carl E. Schaefer	Commander, 412th Test Wing	Edwards Air Force Base			
			Gp Capt Keith F. Joiner (Royal Australian Air Force, Ret., PhD)	CSC	University of New South Wales, Australia			
			Mr. Eric Spigel	Ranges, Engineering and Analysis Department Head	NUWC Division Newport			
			Mr. Christopher Smith	Director, Transportation Security Laboratory	DHS			
	BREAK		10:30 AM	Grand Ballroom G	BREAK in Exhibit Hall			
	Plenary		11:00 AM	Grand Ballroom D	Panel 4 - Modeling and Simulation			
					Chair: I D (Dai) Morris MA, D.Phil, M.Inst.P, C.Phys, Cert. IoD	Head of Capability (Weapons, Evaluation and Capability Assurance)	UK Ministry of Defence	
Lt. Gen. Robert Walsh		Deputy Commandant for Combat Development and Integration			Marine Corps Combat Development Command			
Col Joseph Nolan		Deputy Director			U.S. Army Modeling and Simulation Office (AMSO)			
Jim Clifton, PhD		PM JSF Joint Simulation Environment			NAVAIR			
Mr. Michael Cohen		Senior Program Officer			Committee on National Statistics			
Syed Mohammad, PhD		S&T			DHS			
	12:30 PM	Grand Ballroom D	2017 T&E Professional Awards Luncheon					

Schedule-at-a-Glance

Time	Room	Title of Presentation	Speaker	Organization
Track 1: Cyber Testing Systems of Systems				
Track 1st Chair: Jeffrey McNeil, PhD - Clemson University				
Track 2nd Chair: Mr. Billy Williams - KBRWyle				
2:00 PM	Lake Audubon	<i>Automated Attack Framework for Test & Evaluation (AAFT)</i>	Mr. Andrew Shaffer	ARL Penn State
2:30 PM		<i>Improving Prediction/Detection of Cyber Attacks Using Robust Data Mining Methods</i>	Thomas A. Donnelly, PhD, CAP	SAS Institute, Inc.
3:00 PM		<i>Just How Much Effort is Required to Assess Cyber in a Complex System of Systems?</i>	Mr. Hank Steinfeld Ms. Paola Pringle	Naval Air Systems Command
Track 2: Modeling and Simulation for T&E				
Track 1st Chair: Mr. Phil Hallenbeck, CTEP - The MITRE Corporation				
Track 2nd Chair: Mr. Pete Crump, CTEP, PMP - Georgia Tech Research Institute				
2:00 PM	Lake Thoreau	<i>The "Power" of Risk-Based VV&A</i>	James N. Elele, PhD Mr. David H. Hall	NAVAIR SURVICE Engineering
2:30 PM		<i>Challenges in Validating Complex Large-Scale Simulations for Operational Test</i>	Karl Kuschner, PhD Jay Smith, Ph.D. Ben Lambert, Ph. D. Mr. Jeremy Smith	Institute for Defense Analyses
3:00 PM		<i>Integrated Planning of Tactical, Test Support, and Tactical Engagement Networks (IPT3N)</i>	Mr. Mike DiGennaro	US Army Operational Test Command
Track 3: Autonomous Systems Test & Evaluation				
Track 1st Chair: Mr. Christopher Mazur - TRMC				
Track 2nd Chair: Mr. Thomas O'Brien - TRMC				
2:00 PM	Reston A/B/C	<i>Simulation, Experimentation, and Assessment for Collaborative Autonomy in Unmanned Teams</i>	Mr. Don Davis	GTRI
2:30 PM		<i>T&E of Autonomous Systems: Challenges and Opportunities of Evaluating Trust</i>	Mr. Donald Strausberger	GTRI
3:00 PM		<i>TBD</i>		
Track 4: Big Data Analytics for T&E				
Track 1st Chair: Ed Powell, PhD - Ed Powell Consulting, LLC				
Track 2nd Chair: Mr. Thomas Treakle - DelliEMC				
2:00 PM	Lake Anne	<i>Data Analytics for the T&E Enterprise</i>	Mr. Ryan Norman	TRMC
2:30 PM		<i>Test Resource Management Center Big Data Analytics / Knowledge Management Architecture Framework Overview</i>	Ed Powell, PhD	Ed Powell Consulting
3:00 PM		<i>Data Science and Its Relationship to Test & Evaluation</i>	Mark J. Kiemele, PhD	Air Academy Associates
Track 7: Software Test Systems and Best Practices for T&E				
Track 1st Chair: Mr. Bruce Einfalt - Applied Research Laboratory/PSU				
Track 2nd Chair: Mr. Antwan Phan - SPAWAR				
2:00 PM	Town Center A/B	<i>Operational Testing of Agile programs in a time of change at DHS</i>	Mr. Wayne Dumais	DHS, DOT&E
2:30 PM		<i>Automated Software Testing Best Practices and Framework</i>	Mr. Jim Simpson	JK Analytics
3:00 PM		<i>Best Test Strategies When Setup is Expensive or Time Consuming</i>	Mr. Jim Simpson	JK Analytics

2017 PROGRAM GUIDE

Schedule-at-a-Glance

<u>Time</u>	<u>Room</u>	<u>Title of Presentation</u>	<u>Speaker</u>	<u>Organization</u>
Track 1: Cyber Testing Systems of Systems				
Track 1st Chair: Jeffrey McNeil, PhD - Clemson University				
Track 2nd Chair: Mr. Billy Williams - KBRWyle				
4:00 PM	Lake Audubon	<i>DECRE C2IS environment and activities</i>	Mr. Rod Hallum	JS J6
4:30 PM		<i>TBD</i>	Mr. Dave Aland	DOT&E
5:00 PM		<i>TBD</i>		
Track 2: Modeling and Simulation for T&E				
Track 1st Chair: Mr. Phil Hallenbeck, CTEP - The MITRE Corporation				
Track 2nd Chair: Mr. Pete Crump, CTEP, PMP - Georgia Tech Research Institute				
4:00 PM	Lake Thoreau	<i>TRMC LVC Framework</i>	Mr. Ryan Norman	TRMC
4:30 PM		<i>New Simulation Techniques for Warfighter Systems T&E</i>	Mr. Gilbert Torres	TRMC T&E/S&T
5:00 PM		<i>Modeling and Simulation for Undersea System Concept Development, Test, and Evaluation</i>	Ms. Marsha Perini	ARL Penn State
Track 4: Big Data Analytics for T&E				
Track 1st Chair: Ed Powell, PhD - Ed Powell Consulting, LLC				
Track 2nd Chair: Mr. Thomas Treakle - DelliEMC				
4:00 PM	Lake Anne	<i>DOE vs Big Data Analytics: Synergists or Antagonists</i>	Mark J. Kiemele, PhD	Air Academy Associates
4:30 PM		<i>Big Data in Test and Evaluation</i>	Mr. James Feight	Aberdeen Test Center
5:00 PM		<i>TBD</i>		
Track 6: T&E/S&T Innovations and Emerging Threats				
Track 1st Chair: Mr. Geoff Wilson, TRMC				
Track 2nd Chair: Mr. Andrew Shaffer - Applied Research Laboratory/PSU				
3:30 PM	Grand Ballroom A	<i>A Graded Approach to T&E of Counter-Unmanned Aerial Systems</i>	Mr. Camron Kouhestani	Sandia National Laboratories
4:00 PM		<i>Certification and Evaluation Approach for Counter Unmanned Aerial Systems</i>	Mr. Camron Kouhestani	Sandia National Laboratories
4:30 PM		<i>Development of a New Test and Evaluation Capability to Assess Survivability in Under-Body Blast Events</i>	Mr. Frederick Hughes	US Army Research Laboratory
			Ms. Patricia Riipa	Strategic Communications
		Mr. Michael Landers	PdM Medical Simulation	
Track 8: International Partnering in T&E				
Track 1st Chair: Mr. Greg Simmons, Department of Homeland Security				
Track 2nd Chair: TBD				
4:00 PM	Grand Ballroom C	Mr. Neil E. Meister	Technical Director for Polar Icebreaker Acquisition Program	United States Coast Guard (CIV)
4:30 PM		James P. Millan, PhD	Director of Research and Development Ocean	Coastal and River Engineer
5:00 PM		<i>TBD</i>		

Schedule-at-a-Glance

THURSDAY, OCTOBER 5

REGISTRATION							
Speaker Ready Room / Staff Office							
Session	Time	Room	Title of Presentation	Speaker	Title	Organization	
Plenary	7:45 AM	Grand Ballroom D	ITEA Annual Meeting	Mr. Gene Hudgins	ITEA President	KBRWyle	
	8:00 AM		Featured Speaker	Mr. Paul Mann	Principal Deputy (Acting)	Test Resource Management Center (TRMC)	
	Panel 5 - Cybersecurity						
	Chair: Mr. William Redmond						
	Paul Waters, PhD						
	K. Mitch Crosswait, PhD						
	Mr. James Wells						
Mr. Rick Quade							
BREAK	9:30 AM	Lobby	BREAK				
Plenary	10:00 AM	Grand Ballroom D	Featured Speaker	Ms. Denise De La Cruz	Deputy Director T&E Range Oversight	TRMC, Office of the Under Secretary of Defense, for Acquisition, Technology and Logistics	
	Panel 6 - Space Panel						
	Chair: Mr. Steve Kremer						
	Robert L. Bayt, PhD						
	Mr. Daniel Hicks						
	Robert E. Lindberg Jr., Eng.Sc.D.						
	Mr. Dave Duma						
Mr. Erwin Sabile							
1 PM - 5 PM	Lake Fairfax A	Certified Test and Evaluation Professional (CTEP) Examination Session					
BOX LUNCH for Tutorial Attendees							
T U T O R I A L S (S e p a r a t e d F e e d b a c k)	1 PM to 5 PM	Grand Ballroom A	<i>Real-World DOE and Modern Design and Analysis Methods</i>		Thomas A. Donnelly, PhD, CAP	SAS Institute Inc.	
		Grand Ballroom B	<i>Planning and Executing Cyber Table Tops, Facilitator Training</i>		Ms. Sarah Standard	Cybersecurity / Interoperability Technical Director, OSD AT&L	
		Grand Ballroom C	<i>Test and Evaluation Science and Technology</i>		Ms. Christa Pettie	Cybersecurity Systems Analyst, OSD AT&L TRMC	
					Mr. George Rumford	Deputy Director, Major Initiatives and Technical Analyses, DoD TRMC, AT&L, and Program Manager for the T&E/S&T Program	

ITEA would like to thank our Sponsors!

Gold Level Sponsors



Booz | Allen | Hamilton

strategy and technology consultants



Silver Level Sponsors



Bronze Level Sponsors



Acquisition and the T&E Workforce Panel Sponsor

