



NASA's 2014 International IV&V Workshop

Got Confidence?

Call for Abstracts

5000 NASA Blvd 5th floor • Fairmont, West Virginia, USA

September 9-11, 2014

NASA's 2014 International IV&V Workshop offers an opportunity to gather an in-depth understanding of the challenges that Verification and Validation organizations face in assuring that systems operate safely and reliably. The goal of the workshop is to generate solutions to these challenges.

We are making some changes to this year's Workshop that we feel will improve the event and provide more value to presenters and participants. Proceedings for the 2014 Workshop will be published electronically, with select white papers going into a special edition of a NASA Journal. Abstracts selected for the Workshop will receive additional information on this effort.

This year, we have organized the Workshop around three themes which are detailed in Appendix A. Briefly, they are:

- Challenges
- Panel Discussion
- Ongoing Research or Innovations – (Allows for topics not present in our list of topics)

Earlier this year, we conducted a survey designed to identify topics of most concern and interest to our IV&V community. As a result of this survey, a list of topics that will drive the focus of the Workshop was identified – please see Appendix B

Finally, we have developed a rubric that will be used to score and select abstracts – please see Appendix C.

To submit your abstract for our consideration please choose a theme and topic from our list. Please reference the appendices for details on the themes, topics, sub-topics, and selection and evaluation criteria. Accepted abstracts will be notified as soon as they are selected and final notification will occur no later than July 1, 2014.

To participate in this workshop, you must submit an abstract by June 27, 2014.

All abstracts are to be written in English. An electronic version (PDF or MS Word format) should be submitted via email to ivv-workshop-committee@lists.nasa.gov.

IMPORTANT DATES

June 27, 2014	Abstract Submission Due
June 1, 2014	Registration Opens
September 1, 2014	Final Presentations Due
September 1, 2014	Registration Closes

CONTACT INFORMATION

ivv-workshop-committee@lists.nasa.gov

Workshop Planning Committee: Jennifer Neptune, Bailee Morris, and Greg Stine

<http://www.nasa.gov/centers/ivv/workshops/index.html>



Appendix A - Themes

Challenges – word limit – 350 – These are challenges, or new research ideas, for which the submitter might like objective review and critique from the workshop audience to identify the perspective of the challenge, the realities of the challenges and identify possible solutions. The point is to vet solutions (to the challenge or research idea) among a knowledgeable audience who may ultimately benefit from the results.

Selection Criteria

1. Essential Criteria
 - a. Well-developed abstract with:
 - i. Problem statement
 - ii. High-level methods needing discussion
 - iii. Intended results
 - b. Objective includes rationale or motivation for pursuing as a possible solution
2. Desirable Criteria
 - a. Research Objective - if this is a research idea
 - b. Hypothesis
 - c. Detailed methods

Panel Discussion – Word Limit – 350 – Panel discussions for which submitter’s topic selection benefits from open dialogue with the Workshop audience and select knowledgeable subject matter experts whom you identify in your abstract. **OR** Brainstorm session where submitter’s topic poses a particular problem not fully understood by the industry, workshop community, subject matter experts, etc.

Selection Criteria

1. Essential Criteria
 - a. **Panel** - List of desired panel members (No less than 5 names. Panel should be reasonable to assemble a minimum of 3 members.. We will work to help you coordinate the participation of your desired panel members if your topic is selected.)
Brainstorm – Please indicate if there are particular subject matter experts who may be able to help facilitate this brainstorming session. If not, please indicate how your brainstorming session would best be facilitated. (If selected, we will work to enable your session.)
 - b. Well-developed problem
 - i. Question(s) you want answered
 - c. Desired results



Ongoing Research or Innovations – Word Limit 350 – These are sessions where the submitter wishes to share the results of their research efforts. **OR** These are sessions where the submitter wishes to share solutions or innovations they have implemented in their work practices that the rest of the V&V community may benefit from.

Adherence to the topics list is not critical for this theme, however, abstracts in this theme that fit one of the topics will receive preferential scoring of +1 on their rubric score.

Selection Criteria

1. Essential Criteria
 - a. Well-developed abstract with:
 - i. Problem statement
 - ii. Original hypothesis
 - iii. Research objective
 - iv. Detailed methods
 - v. Intended results
 - vi. Actual results
 - b. Objective includes rationale or motivation for pursuing the research
2. Desirable Criteria
 - a. Conclusions



Appendix B – Topics

All our topics are derived from the responses to our survey. The survey was to identify what are seen as immediate challenges to system and software development, what are the most difficult challenges for NASA given the planned technology for the next 20 years, and what are the biggest challenges to effective verification and validation of future software systems.

When choosing a topic, please keep this perspective in mind. We are primarily concerned with how to resolve challenges for IV&V, and how to improve the state of the practice for future NASA Mission Success.

1. TECHNICAL CONCERNS

- a. Agile Development (e.g., developing safety critical systems with agile development, Documentation concerns, IV&V of software created using agile development)
- b. Autonomous Systems (e.g., assuring emergent behavior, verifying autonomous and self-adaptive behavior, computer vision)
- c. Evidence Based Assurance (e.g., Assurance Cases, assurance analysis vs. issue analysis)
- d. Fault Management (e.g., FM as part of systems engineering)
- e. Hardware/Software Integration (e.g., ASICs CPLDs FPGAs and any other programmable device)
- f. Increasing System Complexity
- g. Risk based assessment and scoping of IV&V work
- h. Robotic systems
- i. Software Security (e.g., impenetrability, cloud computing, crowd sourcing, open source software)
- j. Tool sets and innovations

2. BUSINESS CONCERNS

- a. Commercialization of Space (e.g., system integration, IP concerns, communication between agency and provider during development and assurance activities)
- b. Impacts of Cost Savings (e.g., leaner development environments, cost-driven innovations, cost-effectiveness of IV&V, explanation of value, impact on development and IV&V)
- c. Workforce Education and Training (e.g., maintaining workforce proficiencies in an ever changing environment)



Appendix C – Abstract Scoring Rubric

Quality Aspect	1	2	3	4
Completeness/Clarity – The concepts as described are completely and clearly defined.	The concept is unclear and may include language errors	The concept is general, and does not include session outcomes	The concept is clear and includes a general statement of session outcomes	The concept is clear and well written, including an explicit statement of session outcomes
Quality – Theories/methods/questions are well formulated.	Theories/methods are not well formulated and it is not clear how they tie to the topic or workshop	Theories/methods are not well formulated, but the conclusion is relevant to the workshop	Theories/methods are well formulated, but do not necessarily lead to a clear conclusion	Theories/methods are well formulated, clearly tie to topic, and clearly lead to conclusion
Audience Appeal – Do the title and abstract clearly describe the concept/result and will they capture the audience's attention?	Does not clearly describe the concept or result. Fails to engage audience; no audience appeal	Concept or result barely described. Minimal audience appeal; only those participants that can immediately apply the concepts will be interested.	Concept or result mostly described. Moderate audience appeal; participants who can apply concepts now or in the future will attend	Concept or results thoroughly described. Significantly audience appeal; convinces general audience to attend
Focus – The focus is clear, with explicit correlation to theoretical frameworks and/or professional practice.	Does not focus on any particular theoretical framework or professional practice	Vague reference to theory and/or practice	Content is linked to theory and/or professional practice	Focus is clear, with explicit link to theoretical frameworks and/or professional practice
Impact – The concept/result positively contributes to the Workshop and to the field. The session will help to inspire others.	Fails to increase audience understanding or knowledge of topic, not likely to inspire others.	Raises audience understanding and knowledge of some points, likely to provide minimal inspiration	Raises audience understanding and awareness of most points, provides some inspiration	Significantly increases audience understanding and knowledge of topic; convinces audience to recognize the validity and importance of the subject, inspires audience to get involved
Objectives – The objectives are clear and relevant to the Workshop/audience.	Does not include objectives, or they are inappropriate for the Workshop/audience	Objectives are undefined or vague, and may not be relevant to the Workshop/audience	Relevance of objectives to the audience are implied	Objectives are clear and very relevant to the Workshop/audience
Relevance – The abstract clearly identifies its target audience and illustrates its relevance to the audience. The concept/result is appropriate for, and aligned with, one of the Workshop themes and topics, and supports the Workshop goals.	No target audience is identified, theme or topic is irrelevant to the Workshop/audience	Reference to the target audience is vague or too general, theme or topic is marginally relevant to the Workshop/audience	A general target audience is identified, theme and topic fit within identified Workshop parameters	Target audience and the topic's relevance to the audience is clearly identified, theme and topic are ingrained in the concept or results
Currency – The concept/results builds upon current theory or practice, pushing the field forward. It is directly related to one of the Workshop topics.	Content or underlying premise relies on outdated or discredited practice or theory	Recycles established theories and/or practice	Relevant to current practice and/or research	Content extends current theory or practice, pushing the field forward