



## Artificial Intelligence

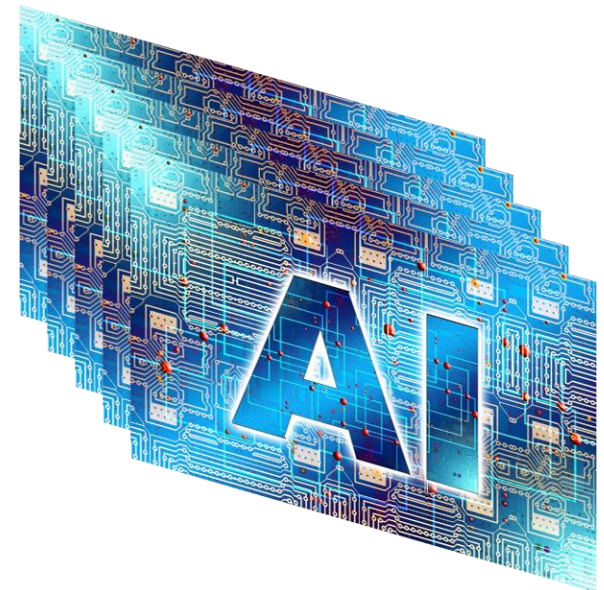
Systems Engineering  
Pathways to AI Now

Virtual Event

November 09, 2021

Hosted by Kerry Lunney, INCOSE President

# Systems Engineering Pathways to AI Now!



# Consider AI...

"Success in creating AI would be the biggest event in human history. Unfortunately, it might also be the last, unless we learn how to avoid the risks." -- Stephen Hawking.

"We've never seen a technology move as fast as AI has to impact society and technology. This is by far the fastest moving technology that we've ever tracked in terms of its impact and we're just getting started." — Paul Daugherty

"It's not about machines replacing humans, but machines augmenting humans." — Robin Bordoli

"AI can be our friend." — Bill Gates

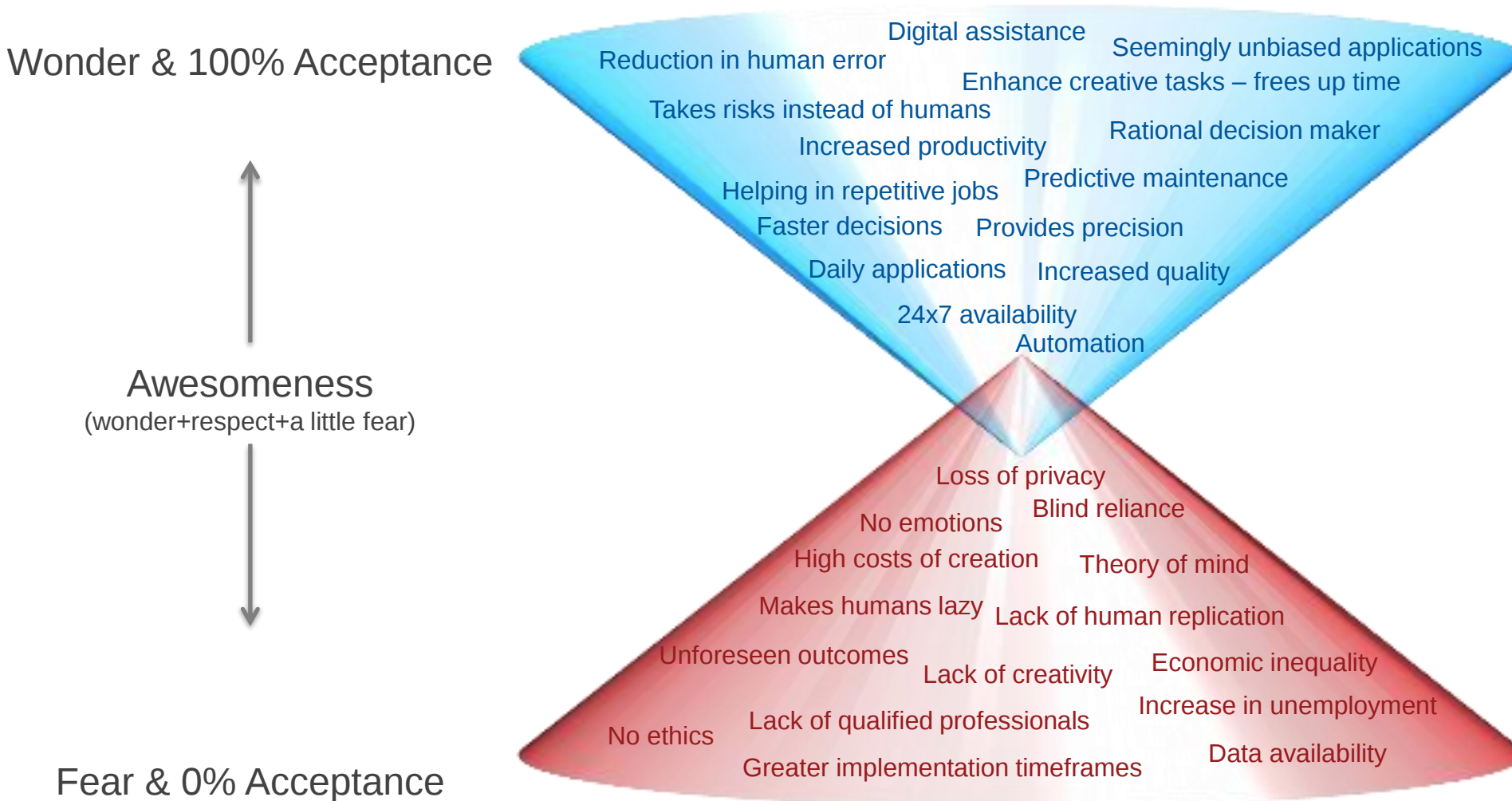


"The three big categories [for building ethics into AI] are first, creating an ethical culture; then being transparent; and then finally taking the action of removing exclusion, whether that's in your data sets or your algorithms." — Kathy Baxter

"A lot of times, the failings are not in AI. They're human failings, and we're not willing to address the fact that there isn't a lot of diversity in the teams building the systems in the first place." — Vivienne Ming

"AI is good at describing the world as it is today with all of its biases, but it does not know how the world should be." — Joanne Chen

# AI Spectrum of Awesomeness



# Event Program

## 1. Challenges to the V&V of Intelligent Systems

**Alejandro Salado, PhD**  
Associate Professor  
The University of Arizona

## 2. Casual Inference: Key for Opening the AI Black Box for SE

**Terril N Hurst**  
Senior Engineering Fellow  
Raytheon Technologies

## 4. Increasing the Success Rate of AI & ML Systems Deployment at the Enterprise Level

**Mehran Irdmoussa**  
Principal Systems Engineer &  
Enterprise Architect  
MZI Aviation

## 3. Data Requirements & the Green School Bus Problem

**Barclay Brown**  
Engineering Fellow  
Raytheon Technologies

**Ramakrishnan Raman**  
Principal Systems Engineer  
Honeywell



# Open Discussion Time



Interact by –

- Raising your hand
- Using “chat”
- Politely interjecting

# INCOSE AI Systems Working Group (WG)

Individual Members

Corporate Advisory Board Organisations (CAB, incl CAB Associates)

Over **19,000** members & CAB Associates, across -

- 66 chapters, 27 countries
- 122 CAB organisations



Chapters/ Sectors

Working Groups

Alliances

Global Reach

**Vision – A better world through a systems approach**

- “Technical “Heart of INCOSE”
- Over 50 WGs worldwide
- Solving problems
- Creating technical products
- Influential Standards group & MBSE initiative

Technical Working Groups



SE Pathways to AI Now

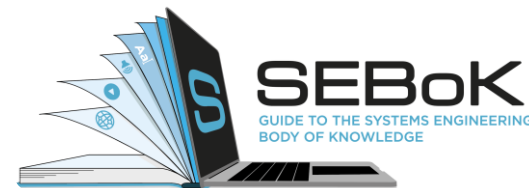
[www.incose.org](http://www.incose.org)

|                                                                                      |                                                                                           |                                                                                               |                                                                         |                                                                  |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------|
| <b>Agile Systems and Systems Engineering</b><br>Rick Dove<br>Transformational        | <b>Architecture</b><br>A. Kumar / J.L. Garner / R. Martin / R. Sieger<br>Process Enablers | <b>Artificial Intelligence Systems</b><br>Thomas Shortell / Tom McDermott<br>Transformational | <b>Automotive</b><br>Alain Dauron / Gary Rushton<br>Application Domains | <b>Competency</b><br>Cliff Whitcomb<br>Analytic Enablers         |
| <b>Complex Systems</b><br>Michael Watson / A.Raz / M. Do<br>Analytic Enablers        | <b>Configuration Management</b><br>Adriana DSouza<br>Process Enablers                     | <b>Cyber Infrastructure Protection and Recovery</b><br>D. Eisenberg<br>Application Domains    | <b>Decision Analysis</b><br>Frank Salvatore<br>Analytic Enablers        | <b>Defense Systems</b><br>Karl Geist<br>Application Domains      |
| <b>Digital Engineering Information Exchange</b><br>Sean McGervey<br>Transformational | <b>Enterprise Systems</b><br>Tom McDermott<br>Process Enablers                            | <b>Earth Observation System of Systems (GEOSS)</b><br>Ben Crowder<br>Application Domains      | <b>Healthcare</b><br>Chris Unger<br>Application Domains                 | <b>Human Systems Integration</b><br>Guy Boy<br>Analytic Enablers |
| <b>Infrastructure</b><br>A. Kouassi<br>Application Domains                           | <b>Integration, Verification Validation</b><br>Russell Kuby<br>Process Enablers           | <b>Large Scale Management</b><br>Duprez / Robert Nilsson<br>Transformational                  | <b>Lean Systems Engineering</b><br>Arthur Hyde<br>Transformational      | <b>MBSE Initiative</b><br>Mark Sampson<br>Transformational       |

## AI Working Group (WG)

- Contributes to international AI community
- Carries out related AI research
- Presents at events globally
- Authors AI related articles for publications, eg *SE Vision 2035* (in final review) / *SE Handbook, Edition 5* (in draft) / *SEBoK* / *SE Journal* (Wiley Publication) / *INSIGHT Magazine* (INCOSE)

**Vision35**  
Systems Engineering



# But For Now – Join Us

**INCOSE International Workshop – IW2022**

**INCOSE International Symposium – IS2022**



Currently hybrid events = in person + remote participation

# Thank You

“By far, the greatest danger of Artificial Intelligence is that people conclude too early that they understand it.” — Eliezer Yudkowsky



For more information or to share ideas:

Join us on Yammer –

- Artificial Intelligence Community Systems WG

Contact directly –

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