



# IEEE Systems Council

Approved: June 2005

Started: Fall 2005

RAS joined in Winter 2005

2<sup>nd</sup> Meeting: Vancouver January 2006

3<sup>rd</sup> Meeting: Orlando May 2006

4<sup>th</sup> Meeting: Quebec? October 2006



# IEEE Systems Council

RAS fears . . .

. . . The Council has also firmly established in its Constitution that it shall never graduate to Society level, as its synergistic effectiveness for IEEE will be lost if that were to happen. . .



# IEEE Systems Council

Our Systems Council job is to address issues in new ways that are not solvable in the domains of the existing IEEE or other societies or global organizations. These do not fit hierarchical boundaries. E.g., Katrina is not solvable by pure engineering solutions. We need to think about changing the paradigm.

Looks for synergies and cooperation between societies!

# Societies involved (15)

- Instrumentation and Measurement
- Aerospace and Electronic Systems
- Engineering Management
- Circuits and Systems
- Microwave Theory & Techniques
- Systems Man & Cybernetics
- Reliability
- Computer
- Product Safety Engineering
- Communications
- Power Electronics
- Oceanic Engineering
- Computational Intelligence
- Robotics & Automation
- Control Systems

# Main Activities

Journal: **IEEE Systems Journal**

First issue: 2007

Conference: **IEEE Systems Conference**

First: **April 9-12**, 2007, Waikiki, Hawaii

Education: **Accreditation** of studies on Systems Engineering

# First topics: Energy and Disasters

## ***Energy:***

- Research into energy methodology
- Mining of energy resources
- Methodology of Conversion of raw materials into useable energy forms
- Production of useable energy
- Storage of useable energy
- Marketing & Distribution of useable energy
- Management of mass energy systems, including the integration of multiple energy sources
- Safety considerations of energy production, storage, distribution & use
- Disposal of depleted energy devices.

# Systems Council Vision Statement

Increase the total effectiveness of complex integrated systems of national and global significance.

## Systems Council Mission

- Promote and integrate system thinking
- Bring together government, industry and academia
- Bridge research, education, application and operational domains
- Bridge disciplines and organizations

# Systems Council Scope

- Engineering and Operations
- Living systems
- Business
- Politics
- Markets



Council Customers:

{ Societies (New incentives for membership?)  
External

**CALL FOR PARTICIPATION  
TO THE ASSOCIATED  
SOCIETIES**

# Systems Council Systems/Systems-of-Systems Domains

- • Autonomous Vehicles and Systems SoS
- • Disaster Response SoS
- Energy SoS
- Environmental Monitoring and Control SoS
- • Exploratory Exploration SoS
  - Space
  - Terrestrial
  - Underwater
- Financial – Insurance SoS
- Food Chain SoS (growth to consumption)
- Global Earth Observation & Prediction SoS
- Human Health and Life Science SoS
- Intermodal Transportation Systems SoS
- Logistics SoS
- National Defenses Security SoS
- Organizational Internal SoS
- Privacy SoS
- Security SoS
- Social/Political Systems
- Socio-economic (including trade, banking, etc. systems)

# Systems Council Disciplines, Processes, Skills Domain



- Automation



- Control, Decision Making and Optimization
- Management of Large-scale Systems



- Manufacturing
- Mission Assurance



- Modeling and Simulation



- Nano-technology
- Product Life Cycle
- Regulatory Compliance
- Reliability, Availability, Safety, Maintainability, Quality
- Risk Management
- Scholarship of Systems Eng



- Systems Engineering Processes Systems-of-Systems

# Systems Council Products and Service (P&S) Areas

- Conferences / Workshops / Symposia
- Educational Training and Mentoring
  - Accreditation
  - Books
  - Certification
  - Systems Engineering Curricula  
(formal education)
  - Tutorials in Education and Training  
(continuing education)
- Publications
  - Journal *Special issues promoted by societies*
  - Magazine?
- Standards

# The future of Systems Council

- Increase the number of societies involved
- Increase activities through societies: TC . . .
- Get more members (through societies)
- Create Chapters (per Sections)
- Decrease economical dependence from societies (5K→2K)
- Relation with other Councils-Societies (IEEE or not)
- . . .

# Potential promotion actions from RAS

Announcement in RAM

Visibility through the RAS web

Special call for participation to on going activities

Search of key people for promoting new activities

With:

Publications

Conferences...

Technical Committees

Education

. . .

<b>IEEE Society</b>	<b>Member?</b>	<b>Rep</b>	<b>Organization</b>
<b>Instrumentation &amp; Measurement</b>	<b>yes</b>	Steve Karlovic *	EADS North America
<i>Steve Dyer</i>		Dr. Stephen Adam	Adam Microwave
<b>Aerospace &amp; Electronic Systems</b>	<b>yes</b>	Bob Lyons *	Consultant
<i>Jim Leonard</i>		Theodora Saunders	Sikorsky
<b>Engineering Management</b>	<b>yes</b>	Dr. Gerard H (Gus) Gaynor	St Thomas Univ
<i>Tariq Durrani</i>		open	
<b>Circuits And Systems</b>	<b>yes</b>	Mario di Bernardo	Univ of Naples Federico II
<i>Ellen Yoffa</i>		Dr. Wai-Chi Fang *	NASA-JPL
<b>Microwave Theory &amp; Techniques</b>	<b>yes</b>	Dr Roger Kaul *	
<i>Karl Varian</i>		Dr W. Gregory Lyons	MIT Lincoln Laboratory
<b>Systems, Man &amp; Cybernetics</b>	<b>yes</b>	Richard Saeks	Accurate Automation Corp
<i>Larry Hall</i>		Don Brown *	
<b>Reliability</b>	<b>yes</b>	Lon Chase	Raytheon
<i>Bill Tonti</i>		Dr. Shuichi Fukuda	Tokyo Inst of Technology
<b>Computer</b>	<b>yes</b>	Byron Purves	Boeing
<i>Deborah Cooper</i>		Stephanie White	Long Island Univ
<b>Product Safety Engineering</b>	<b>yes</b>	Mark Montrose	Montrose Compliance Systems
<i>Henry Benitez</i>		open	
<b>Communications</b>	<b>yes</b>	Prof Amitabh Mishra *	Virginia Tech
<i>Nim Cheung</i>		Prof Stu Milner	University of Maryland
<b>Power Electronics</b>	<b>yes</b>	Marcelo G. Simoes *	Colo School of Mines
<i>Rik DeDoncker</i>		Antonello Monti	
<b>Oceanic Engineering</b>	<b>yes</b>	Dr Albert (Sandy) Williams *	Woods Hole Ocean.Inst.
<i>Jim Barbera</i>		Steve Holt	Mitertek
<b>Computational Intelligence</b>	<b>yes</b>	Dr Witold Pedrycz *	Univ of Alberta
<i>Vincenzo Piuri</i>		open	
<b>Robotics &amp; Automation</b>	<b>yes</b>	Alicia Casals *	
<i>Dick Volz</i>		open	
<b>Control Systems Society</b>	<b>yes</b>	Prof N. Harris McClamroch	University of Michigan
<i>John Baillieul</i>		open	

# Structure

<b>President</b>	<b>I&amp;M</b>	Bob Rassa
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# Structure

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<b>Chair, Meetings Committee</b>	<b>CS</b>	<i><b>VP Technical Ops</b></i>
<b>Chair, Nominations &amp; Appointm.</b>		open
<b>Chair, Constitution &amp; ByLaws</b>	<b>PSES</b>	Mark Montrose
<b>Chair, Fellows Committee</b>	<b>I&amp;M</b>	Steve Adam
<b>Chair, Standards Committee</b>	<b>I&amp;M</b>	<i><b>Steve Adam</b></i>
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<b>Div X Director</b>	<b>Div X</b>	Litsa Micheli-Tzanakou
<b>Div X Director-Elect</b>	<b>Dic X</b>	Bill Gruver

# Fields of Interest

- *Systems engineering, education, standards, processes and methodologies*
- *Modeling, simulation and integration related to design, testing, production and support*
- *Design aspects for robust design, human factors, safety, security and usability*
- *Transition of products from design to production, deployment and use*
- *Quality control and system management*
- *Program/product/project management interactions*
- *Risk Management*
- *Systems Architecture”*