IEEE Systems Council

Approved: June 2005
Started: Fall 2005
RAS joined in Winter 2005

2nd Meeting: Vancouver January 2006
3rd Meeting: Orlando May 2006
4th 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:

\[
\begin{align*}
\text{Societies } & \text{(New incentives for membership?)} \\
\text{External} & 
\end{align*}
\]

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 SoSs
  - 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
  Magazine?
  Special issues promoted by societies
• 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 ongoing activities
Search of key people for promoting new activities

With:
Publications
Conferences…
Technical Committees
Education
...
<table>
<thead>
<tr>
<th>IEEE Society</th>
<th>Member?</th>
<th>Rep</th>
<th>Organization</th>
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<tbody>
<tr>
<td>Instrumentation &amp; Measurement</td>
<td>yes</td>
<td>Steve Karlovic *</td>
<td>EADS North America</td>
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<td>Dr. Stephen Adam</td>
<td>Adam Microwave</td>
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<td>yes</td>
<td>Bob Lyons *</td>
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<td>Theodora Saunders</td>
<td>Sikorsky</td>
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<td>Dr. Gerard H (Gus) Gaynor</td>
<td>St Thomas Univ</td>
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<td>Tariq Durrani</td>
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<td>Mario di Bernardo</td>
<td>Univ of Naples Federico II</td>
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<td>Dr. Wai-Chi Fang *</td>
<td>NASA-JPL</td>
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<td>yes</td>
<td>Dr Roger Kaul *</td>
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<td>Karl Varian</td>
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<td>MIT Lincoln Laboratory</td>
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<td>yes</td>
<td>Richard Saeks</td>
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<td>Larry Hall</td>
<td>Don Brown *</td>
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<td>yes</td>
<td>Lon Chase</td>
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<td>Dr. Shuichi Fukuda</td>
<td>Tokyo Inst of Technology</td>
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<td>Computer</td>
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<td>Byron Purves</td>
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<td>Communications</td>
<td>yes</td>
<td>Prof Amitabh Mishra *</td>
<td>Virginia Tech</td>
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<td>Prof Stu Milner</td>
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<td>Power Electronics</td>
<td>yes</td>
<td>Marcelo G. Simoes *</td>
<td>Colo School of Mines</td>
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<td>Rik DeDoncker</td>
<td>Antonello Monti</td>
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<td>Dr Albert (Sandy) Williams*</td>
<td>Woods Hole Ocean.Inst.</td>
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<td>Jim Barbera</td>
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<td>yes</td>
<td>Dr Witold Pedrycz *</td>
<td>Univ of Alberta</td>
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<td>Robotics &amp; Automation</td>
<td>yes</td>
<td>Alicia Casals *</td>
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<td>yes</td>
<td>Prof N. Harris McClamroch</td>
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<td>President</td>
<td>I&amp;M</td>
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<tr>
<td>VP-Technical Operations</td>
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<td>Editor, IEEE Systems Journal</td>
<td>SMC</td>
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<tr>
<td>Chair, Publications Committee</td>
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<td>Chair, Constitution &amp; ByLaws</td>
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<td>Div X Director-Elect</td>
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<td>Bill Gruver</td>
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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”