

CPS Principal Investigator Meeting 2010

Arlington Westin Hotel

August 10-12, 2010

Agenda

Tuesday

- 8:00 – 8:30 Continental Breakfast
- 8:30 – 8:50 *Opening Remarks*
Thomas Peterson, NSF Assistant Director for Engineering
Ty Znati, NSF Division Director for CNS/CISE
Robert Trew, NSF Division Director for ECCS/ENG
- 8:50 – 9:00 *NSF Charge*
Helen Gill, CNS/CISE, Kishan Baheti, ECCS/ENG and Zygmunt Haas, ECCS/ENG
- 9:00 – 9:30 *Government Keynote: CPS as Part of the Federal Information Technology R&D*
Chris Greer, Assistant Director for Information Technology R&D
Office of Science and Technology Policy
- 9:30-10:05 *Science Keynote: Foundations of Cyberphysical Systems*
P.R. Kumar, UIUC
- 10:05 – 10:20 Break
- 10:20 – 12:00 **Session 1: CPS Foundations**
- 10:20- 10:35 Jack Stankovic: Foundations of Cyberphysical Networks
- 10:35-10:50 Richard Murray: Control Design for Cyberphysical Systems Using Slow Computing
- 10:50-11:05 Rahul Mangharam: Quantitative Analysis and Design of Control Networks
- 11:05-11:40 Panel Discussion
Panelists: Michael Branicky (moderator), P.R. Kumar, Jack Stankovic, Richard Murray, Rahul Mangharam
- 11:40 – 12:15 Break for Lunch Pickup
- 12:15 – 1:45 **Conversation with Government and Industry: Transportation**
Panelists: Helen Gill (moderator), Sushil Birla – NRC, Yuri Gawdiak - FAA JPDO for NextGen, Doug Rohn - NASA Aviation Safety, Russ Urzi - AFRL, Joe Peters- FHA, Ralph Wachter – US Navy, David Corman – Boeing, Shige Wang – GM, Bill Milam - Ford, Sri Kumar – SRI
- 1:45 – 3:00 **Session 2: Transportation**
- 1:45 - 2:00 Claire Tomlin: ActionWebs
- 2:00 - 2:15 Hari Balakrishna: Vehicular Cyber-Physical Systems
- 2:15 - 2:30 Francesco Borrelli: High Confidence Active Safety Control in Automotive Cyberphysical Systems
- 2:30 – 3:00 Panel Discussion
Panelists: Raj Rajkumar (moderator), Claire Tomlin, Hari Balakrishnan, Francesco Borelli, Alex Bayen
- 3:00 – 3:30 Break

3:30 – 5:00 **Poster Session**
Starts with 2 minutes project introductions

8:00 - **Birds of a Feather Group Meetings**
Signup sheets for BoF sessions are at the registration desk.

1. Special Interest Group on CPS Foundations
Discussion Lead: Bruce Krogh
2. Special Interest Group on Transportation
Discussion Lead: Claire Tomlin
3. Special Interest Group on open source tools and experimental platforms for CPS
Discussion Lead: Gabor Karsai
4. An additional meeting room will be available for BoF Session initiated by PI-s.

Wednesday

8:00 – 8:30 Continental Breakfast

8:30 – 9:00 Opening: Introduction of the CPS-VO

9:00 – 9:45 Keynote: The Innovation Economy
Curtis Carlson, President and CEO of SRI International

9:45 – 10:00 Break

10:00 – 12:00 **Session 3: Health and Medical**

10:00-10:15 Insup Lee: Infrastructure and Technology Innovations for Medical Device Coordination

10:15- 10:30 Gregory Hager: Hybrid Systems for Modeling and Teaching the Language of Surgery

10:30-10:45 Eric Perreault: Cybernetic Interfaces for the Restoration of Human Movement Through Functional Electrical Stimulation

10:45-11:00 Howard Chizeck: Control of Surgical Robots: Network Layer to Tissue Contact

11:00-11:40 Panel Discussion
Panelists: Jack Stankovic (moderator), Insup Lee, Gregory Hager, Eric Perreault, Howard Chizeck, Julian Goldman

11:40 – 12:15 Break for Lunch Pickup

12:15 – 1:45 **Conversation with Government and Industry: Energy and Health/Medical**
Panelists: Kishan Baheti (moderator), John Haller – NIH/NIBIB, Mark Johnson – ARPA-E, Al Wavering – NIST, Brad Martin – NSA, Nabil Adam – DHS, Paul Jones – FDA, Julian Goldman – CIMIT, Celia Merzbacher - SRC

1:45 – 3:10 **Session 4: Energy**

1:45 - 2:00 Marija Ilic: Smart Grids as a Means of Implementing Sustainable Energy Systems: The Key Role of Dynamic Monitoring and Decision Systems (DYMONDS)

2:00 - 2:15 Rohit Negi: A Computing Framework for Distributed Decision Making to Ensure Robustness of Complex Man-Made Network Systems: The Case of the Electric Power Networks

- 2:15 - 2:30 Randy Katz: LoCal - A Network Architecture for Localized Electrical Energy Reduction, Generation and Sharing
- 2:30 - 2:45 Prabir Barooah: Methods for Network-Enabled Embedded Monitoring and Control for High-Performance Buildings
- 2:45 – 3:10 Panel Discussion
Panelists: Dagmar Niebur (moderator), Marija Ilic, Rohit Negi, Randy Katz, Prabir Barooah

3:10-3:30 Break

3:30 – 5:00 **Poster Session**
Starts with 2 minutes project introductions

8:00 - **Birds of a Feather Group Meetings**
Signup sheets for BoF sessions are at the registration desk.

1. Special Interest Group on Health and Medical
Discussion Lead: Insup Lee
2. Special Interest Group on Energy
Discussion Lead: Marija Ilic
3. Special Interest Group on Certification: Research needs to support safety-critical software certification
Discussion Lead: Sushil Birla
4. An additional meeting room will be available for BoF Session initiated by PI-s.

Thursday

8:00 – 8:30 Continental Breakfast

8:30 – 10:00 Communicating in New Media Landscape
Joshua Chamot for NSF office of Public and Legislative Affairs (OLPA)

10:00-10:30 Break

10:30 – 12:00 Wrap-up Discussion

Note: The Thursday Session will run parallel with the CPS Education Workshop

All rooms will be set-up in class-room style with projector and screen for presentations by invited speakers.

Birds of a Feather Meeting – Tuesday, August 10th at 8 p.m.

Ernest Hemingway salon 1
CPS Foundations

Ernest Hemingway salon 2
Transportation

Ernest Hemingway salon 3
Open Source

F. Scott Fitzgerald D
To be determined

Birds of a Feather Meeting – Wednesday, August 11th at 8 p.m.

Ernest Hemingway salon 1
Health and Medical

Ernest Hemingway salon 2
Energy

Ernest Hemingway salon 3
Certifications

F. Scott Fitzgerald D
To be determined