

# 2017 CPS Pls Meeting

Birds of a Feather:

Towards the Internationalization of CPS

November 13, 2017

7p.m. - 8 p.m.

Organizer: Seta Bogosyan

- A total of 160 people registered
- 61 people attended the session
- 30 stayed for the break-out session

# **How can CPS benefit from international collaborations (with developed and developing countries):**

1) Access to shared testbeds for cps scale problems: e.g., working on disasters, Tsunamis, transportation systems, electrical power grid, SCC, security, food, resilience, standardization etc.

-- where there is a greater similarity of infrastructure with developed countries, geographic diversity matters. In addition, lack of legacy infrastructure in developing countries may make them attractive testbeds for the implementation of new technologies.

2) Access to datasets: this is particularly important for disaster-related datasets and standard testing facilities. Participants pointed out that the DARPA robotics challenge was inspired by Japanese activities in the area. Datasets -- including “crowdsourced” datasets -- are crucial to future modeling and prediction of human/CPS systems.

3) Diversity of policy frameworks: CPS applications increasingly intersect public policy domain. However, societal norms, cultural values and expectations vary -- as they do across North America.

International collaborations provide an important exposure to diversity of policy views, including different types of reasoning frameworks that will eventually make CPS systems robust and responsive to policy needs.

4) Developing countries, a greater source of individual human talent, which could drive CPS research and systems talent to drive proliferation of CPS systems. International collaborations provide not only geographic diversity but also access to critical human resources for targeted research of changing societies. For instance, rapid infrastructure development in emerging societies provides a window of opportunity to closely study effect on energy, environment and water resources or even people movements.

5) Crowdsourcing advantages: heterogeneity and scale are two distinct advantages to CPS research brought by international collaborations.

## **Pls' suggestions for next steps:**

- Encourage INTL option similar to TTP options on CPS proposals
- Issue DCL inviting participation in a workshop to explore international collaborations, and to determine CPS areas that could benefit from international collaboration.
- Seek multinational industrial support/collaboration in those workshop and research activities to follow.
- Int'l research supplements an option, but need to know how the foreign counterpart will be funded.

- For NSF Office of Int'l Sci. and Eng. (OISE): Build a website or a link to all countries (developed and developing) that have an NSF counterpart, preferably with their budgets.
- There is definitely interest in collaboration with developing countries, but PIs need more guidance from NSF on their resources and funding.