

## Workshop Agenda

8:15-9:00	Breakfast	
9:00-9:10	Introductions	
9:10-9:30	The role and significance of Industry-University Collaborative Research in CPS	Don C. Winter, Boeing
9:30-10:45	Panel: Expectations for University – Industry Collaborative Research in CPS	Richard Buskins (LM), Clas Jacobson (UTRC), Sri Kumar (BAE Systems), John Baras (UMD), Marija Iljic (CMU), Edward Lee (Berkeley), Alex Levis (GMU) <i>Moderator: Doug Schmidt</i>
10:45-11:00	Break	
11:00-12:15	Panel: Existing Forms of University-Industry Collaborative Research	Celia Merzbacher (SRC), David Corman (Boeing), Vijay Kumar (Upenn), George Pappas (Upenn), Raj Rajkumar (CMU), Bill Milam (Ford); Hugo Andrade (NI) <i>Moderator: Jack Stankovic</i>
12:15-1:30	Lunch	
1:30-2:30	Brainstorming and General Discussion	<i>Moderator: Edward Lee</i>
2:30-3:00	Summary Recommendations	<i>Moderator: Bruce Krogh</i>
3:00-3:15	Break	
3:15-4:00	Closing Discussion and Action Items	<i>Moderator: Janos Sztipanovits</i>



2. Existing Forms of University-Industry Collaborative Research

- a. What are the characteristics of the various collaboration forms?
- b. What is working well and what is not?
- c. What is missing?

<b>DRAFT -Existing University-Industry Collaboration Forms</b>											
University-Industry Partnership	Focused on Specific Technology Challenge	Time Horizon In Years	Membership Closed Partially Open Open	Program Independent Management Structure	Annual Funding Level for Collaborative Projects	Coordination Among Basic, Applied and Transitioning Components	Single or Multi-Agency Support	Single or Multi-Company Support	Industry Government Funding Ratio (%)	Open Collaboration Framework Among Partners	General IP Agreement
MARCOS	Y	Unrestricted	Closed	Y	\$6-10M	B/A	S	M	50:50	Y	Y
CTA	Y	10	PO		\$15M-\$18M	B/A/T	S		0:100	Y	Y
NSF-IUCRC	Y	Unrestricted	Closed		\$100K-\$200K	B	S	M	90:10	Y	Y
NSF-ERC	Y	10	Closed		\$4M	B	S	M	5:95	Y	Y
AVSI		Unrestricted	Closed			A/T					
INTEL Lablets		Unrestricted	Closed								
GE Str. Partnership											
University Affiliate Programs		Unrestricted	Closed	Y							
Escher	Y	Unrestricted	Open	Y	\$100K-\$300K	T	M	M	100:0	Y	Y
ARTEMIS	Y	3	Closed	Y	\$10M	A/T	M	M	33:67	Y	Y

### 3. Brainstorming and General Discussion

Moderator: Edward Lee

Workshop Motivation:

- a. There is a traditional division of R&D research between academy and industry: academy conducts precompetitive, long term research funded mostly by government, while industry is engaged in short term, self-funded (IR&D) or contract (CR&D) activities.
- b. The separation of academic and industry research is counterproductive in CPS due to the significant application pull and chronic need for basic research results. Advanced industrial applications continuously produce a host of fundamental, unsolved problems from composition theories to system integration and to certification that can challenge researchers and validate their results. Alignment of academic research and industry needs serves the interest of both the academic and industry communities.
- c. However the existing forms of coordinating industry- academy research have many weaknesses in size, legal constructs, governance and effectiveness.

How can we move ahead?

### 4. Summary Recommendations

Moderator: Bruce Krogh

- a. Do we need major changes?
- b. Can existing forms fix the problems? How?

### 5. Closing Discussion Action Items

Moderator: Janos Sztipanovits

- a. Writing the White Paper (outline, schedule)
- b. Discussion on the content
- c. Dissemination