



FORCES Integration

Saurabh Amin

FORCES all hands meeting, Oakland, CA

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Integration plans

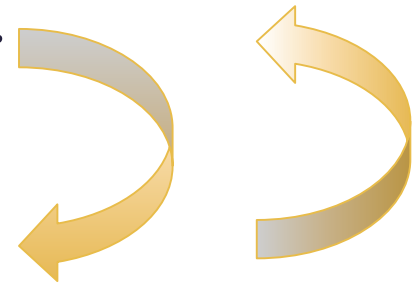
- * **Societal component is the most important aspect of FORCES, in particular the integration of technology (RC) & Economics (EI)**
 - * Unconventional ideas, out-of-the-box solutions
 - * Concrete plans and efforts
- * Build on prior strengths (and not forget them!)
 - * Existing testbeds, tools, case studies and their FORCES extensions
- * Foster and sustain collaboration with industry
 - * Testbeds: simulators and platforms
 - * Data and use cases / case studies

Integration efforts

	RC				EI			
	Diagn ostics (F&A)	Robust/ Stoch. control	Model- based design	Secure design/ ops.	Game theory	Mecha nism design	CPS risks mgmt.	Human in loop
Road (on/side)	★							
Air (space/port)								
Electricity (trans/dist)								
Energy (Ren./hybrid)								
CPS Sec. (Reliability/Res ilience)								
Codesign								★

Measures of success

- * Short-term goals that can lead us to success:
 - * New models, analysis, design results on RC+EI
 - * Novel abstractions and understanding of h-CPS
 - * Surprising / counterintuitive results, Aha moments,...
 - * Resilient algorithms, better guarantees
- * Validation of applicability to one or more FORCES domains
- * New data sets, prototypes, code, design tool,..
- * Demos on traditional/new CPS platforms
- * Adoption of concepts / tools, direct relevance/ use by industry



Highlights

- * Smart America Challenge:
 - * FORCES integration of Mobile Millennium and ISIS
- * Industry collaboration:
 - * Knowledge transfer session by Speranzon (UTRC), Ohlsson & Ratliff (UCB)
- * Education efforts:
 - * Young researcher talks
 - * Course modules, UROPs, conference workshops
- * Team efforts:
 - * Active collaborations between students and faculty of four campuses
 - * First set of papers out!
- * Big picture discussions:
 - * Illustrations and case studies
 - * Informal conversations

Moving forward

- * Proactive participation in team-wide FORCES meetings
 - * Explicit discussion about integration efforts and plans
 - * “So what?” questions, next steps, and limitations!
- * FORCES website and CPS-VO
 - * Post publications, video, data sets, code
 - * Quarterly revisions to the website, highlights, news
 - * Communicate updates to NSF PMs, IABs, broader CPS community
- * Representing the team in meetings, workshops
 - * Participation at CPSWeek, CPS PI meetings, NSF workshops
 - * Proposed workshops at IEEE CDC
 - * Invited lectures at major conferences
- * In progress:
 - * New benchmark problems, comparison of techniques, data sharing
 - * Short-term visits, touch-base between FORCES gatherings