

# Efficient Information Spread Control in CPS

Ali Khanafer and Tamer Başar  
Coordinated Science Laboratory, ECE  
University of Illinois at Urbana-Champaign

# Impact of (mis)Information

**AP** The Associated Press   [Following](#)

**Breaking: Two Explosions in the White House and Barack Obama is injured**

 Reply  Retweet  Favorite  More

<b>3,063</b> RETWEETS	<b>144</b> FAVORITES	
--------------------------	-------------------------	--

12:07 PM - 23 Apr 13

# Impact of (mis)Information



The screenshot shows a Twitter post from the account 'AP CorpComm' (@AP\_CorpComm). The profile picture is the AP logo. The text of the tweet reads: 'The @AP Twitter account has been suspended after it was hacked. The tweet about an attack on the White House was false.' The tweet is dated '12:25 PM - 23 Apr 2013'. At the bottom, it shows '444 RETWEETS' and '30 FAVORITES'. There are icons for reply, retweet, and favorite. A 'Follow' button is visible in the top right corner of the tweet card.

**AP** AP CorpComm ✓  
@AP\_CorpComm

Follow

The @AP Twitter account has been suspended after it was hacked. The tweet about an attack on the White House was false.

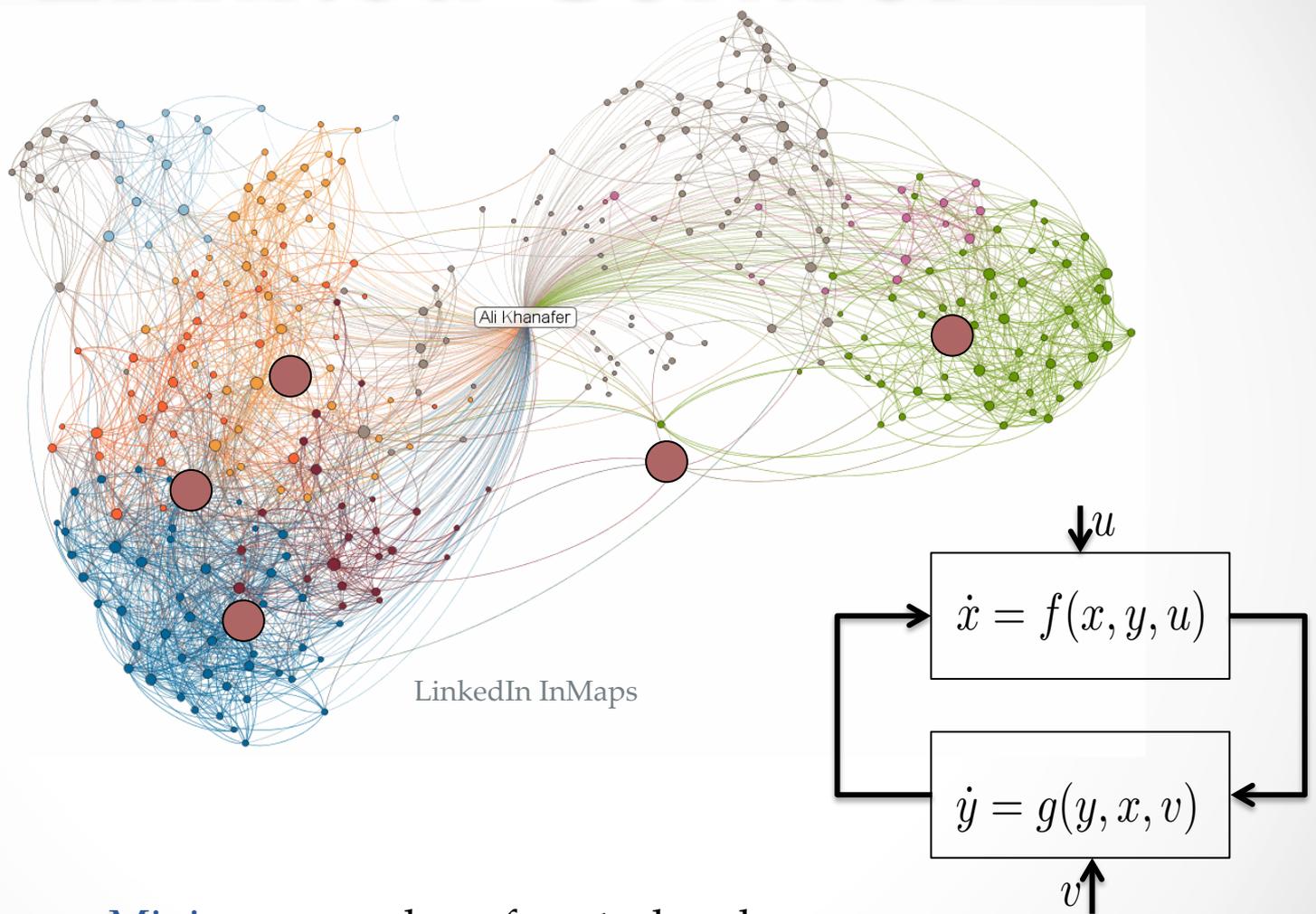
12:25 PM - 23 Apr 2013

444 RETWEETS 30 FAVORITES

# Impact of (mis)Information

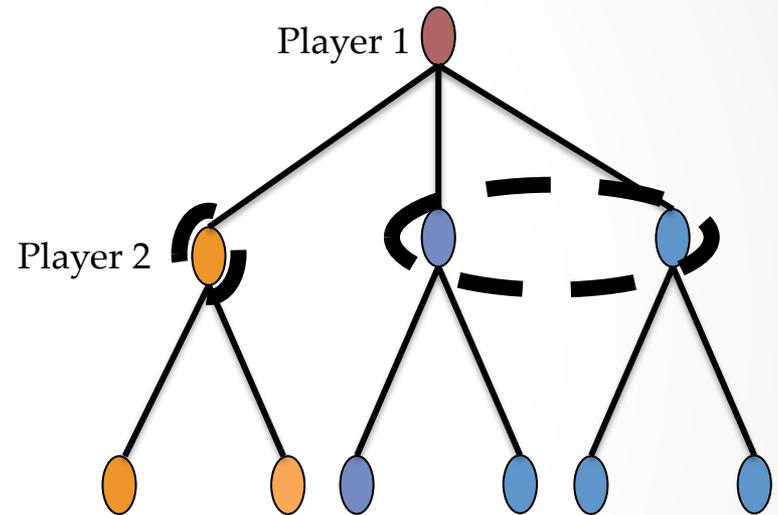
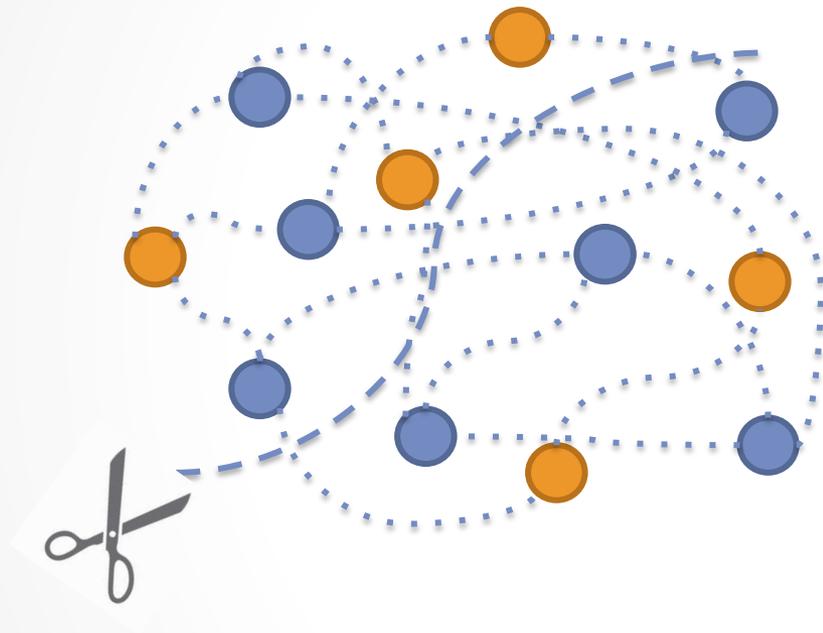


# Limited Control



- **Minimum** number of control nodes
- **Which** nodes to control?
- Proof of concept: **Virus spread control**

# Uncertainties and Failures



- Robust distributed controllers
- Proof of concept: Robust distributed averaging

- Unknown user types: motivates game theory

Thank you!