

Security-Aware Waveforms for Enhancing Wireless Communications Privacy in Cyber-Physical Systems via Multipath Receptions

ABSTRACT

Cyber-Physical System (CPS) is an integration of computation, networking, and physical processes. As suggested by its name, CPS is mainly composed of two components, a physical process and a cyber system. The physical elements in CPS are controlled by the cyber system, which consists of a variety of physical objects possessing sensing, computing, and communication capabilities, to do real-time monitoring and processing. CPS is such an intelligent system that it can interact with the real physical world based on the data acquired from the physical world. Applications of CPS span various fields from people's daily lives to a nation's critical infrastructure.

EXISTING SYSTEM

In Existing System, Cyber-Physical System (CPS), regarded as the next generation of engineered system, has the capability to interact with the real physical world. Applications of CPS span various fields such as medical monitoring, traffic control, and smart grid. With such widespread applications, privacy assurance is becoming more and more important since what the CPS connects are people and the real world. Any leakage of private information will cause serious consequences.

DIS ADVANTAGES

- Secrecy rate is higher if the relay-destination link has more paths.
- Leakage of personal sensitive information.

PROPOSED SYSTEM

In Proposed System, Privacy-enhanced waveform design approach aided by artificial noise (AN) to enhance the communication secrecy in a wireless environment with multipath receptions. First, we consider the case with perfect Eaves dropper's channel state information (CSI). We optimize the AF coefficient for forwarding the information-bearing signal and the

(AN) covariance to maximize the achievable secrecy rate. The optimal solution is obtained by solving a series of semi definite programs (SDPs). Then, a more practical scenario with imperfect eavesdropper's CSI is studied. We develop a robust waveform design method and obtain the lower bound of the achievable secrecy rate.

ADVANTAGES

- Achieve perfect secrecy without requiring any pre shared secret keys.
- Providing robust and efficient CPS applications in different environments.

SYSTEM REQUIREMENTS

H/W System Configuration:-

Processor	-	Pentium –III
RAM	-	256 MB (min)
Hard Disk	-	20 GB
Key Board	-	Standard Windows Keyboard
Mouse	-	Two or Three Button Mouse
Monitor	-	SVGA

S/W System Configuration:-

Operating System	:	Windows95/98/2000/XP
Application Server	:	Tomcat5.0/6.X
Front End	:	HTML, Jsp
Scripts	:	JavaScript.
Server side Script	:	Java Server Pages.
Database	:	MySQL 5.0

Database Connectivity : JDBC

www.takeoffprojects.com