

Instituto Politécnico Nacional
Centro de Investigación en Computación
Laboratorio de Ciberseguridad

**Research lines and
Masters Thesis Proposals**

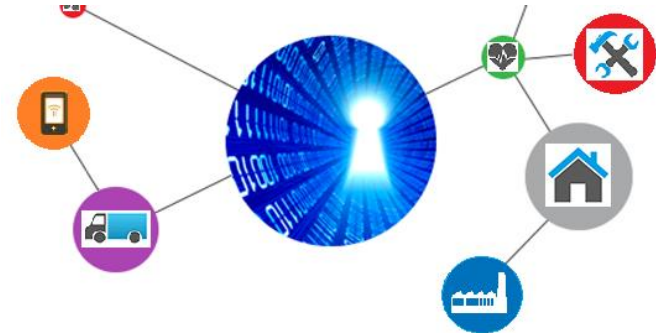
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LA TÉCNICA AL SERVICIO DE LA PATRIA

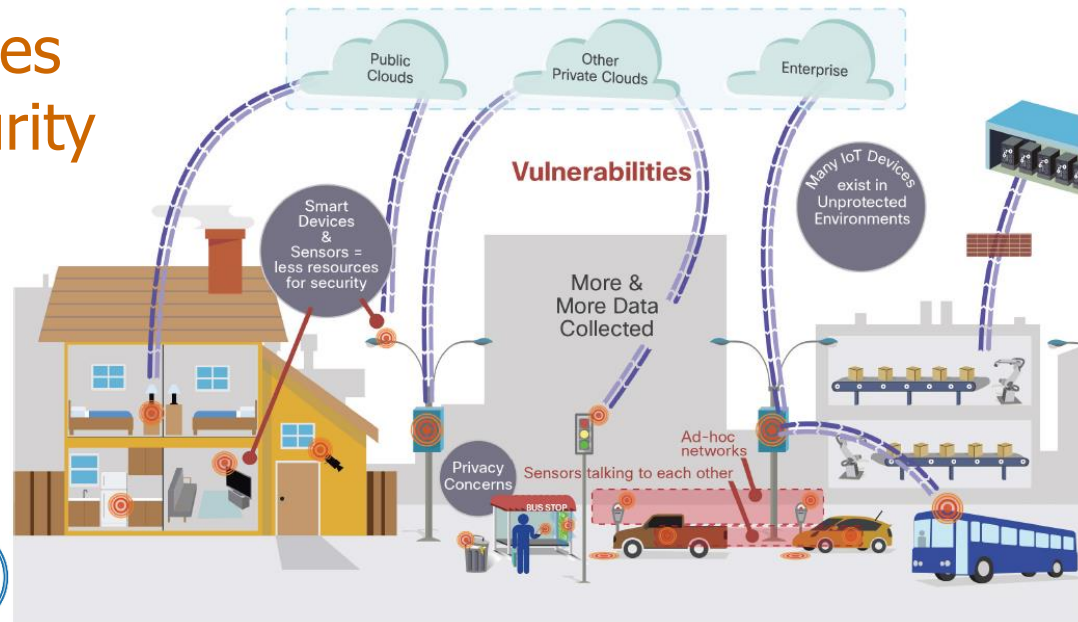


Research lines



Internet of Things
Cyber Security

Smart Cities Cyber Security

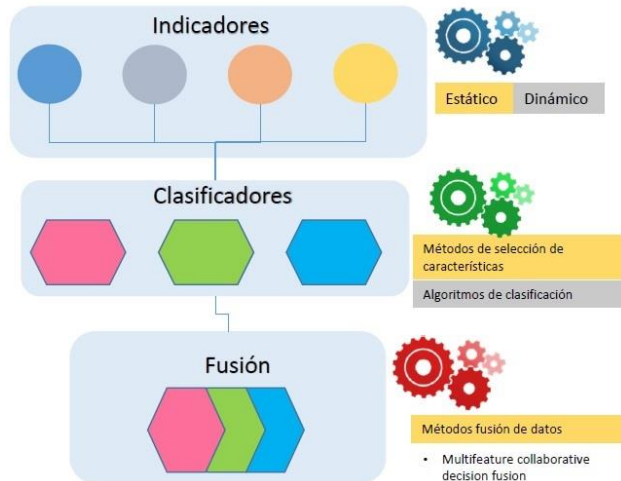


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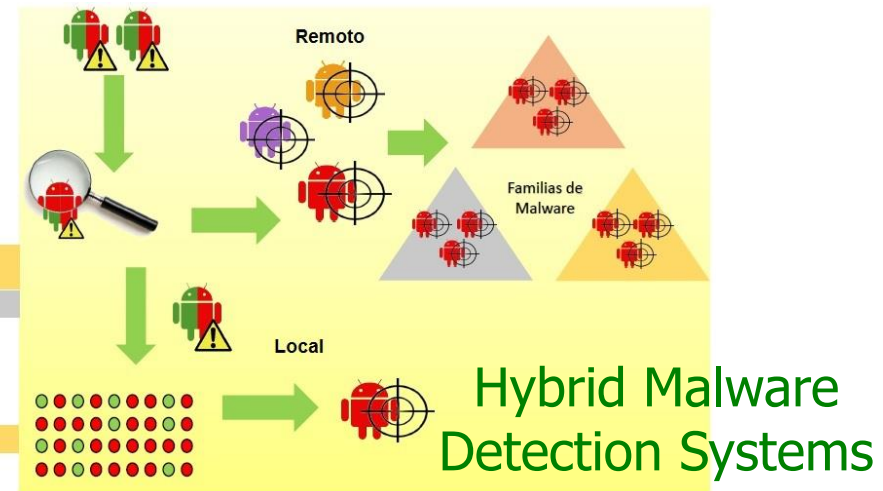
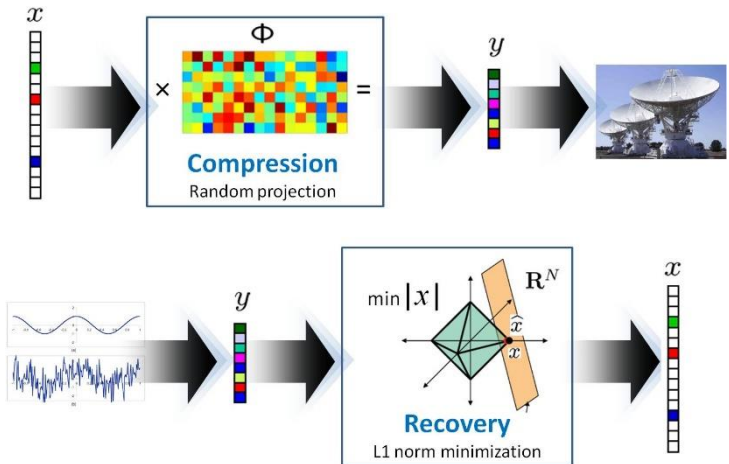


Research Lines

Mobile Cyber Security

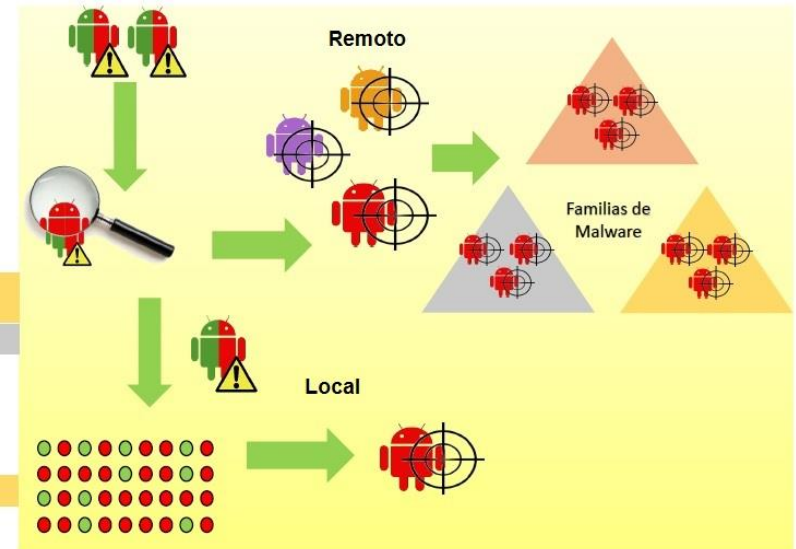
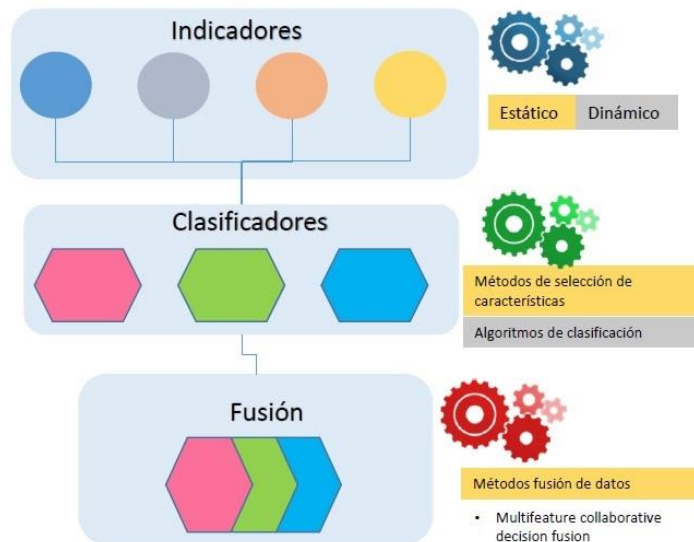


Compressive sensing



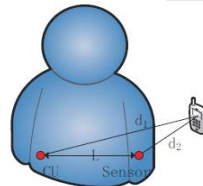
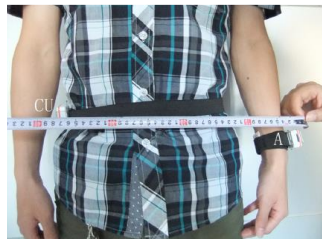
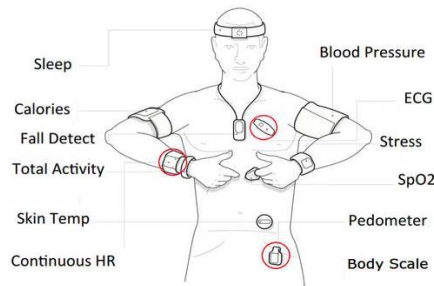
Thesis proposals

- ❑ Title: Hybrid malware detection in smartphones with OS Android (Detección híbrida de código malicioso en teléfonos inteligentes con SO Android).
- ❑ Objective: To design and develop a hybrid malware detection system for smartphones with SO Android, which will explore the integration and managing of different malware detection and analysis methods. The term hybrid implies both a local (host)-remote (server/cloud) implementation and a static-dynamic analysis approach. The idea is to find a balance between security and usability.



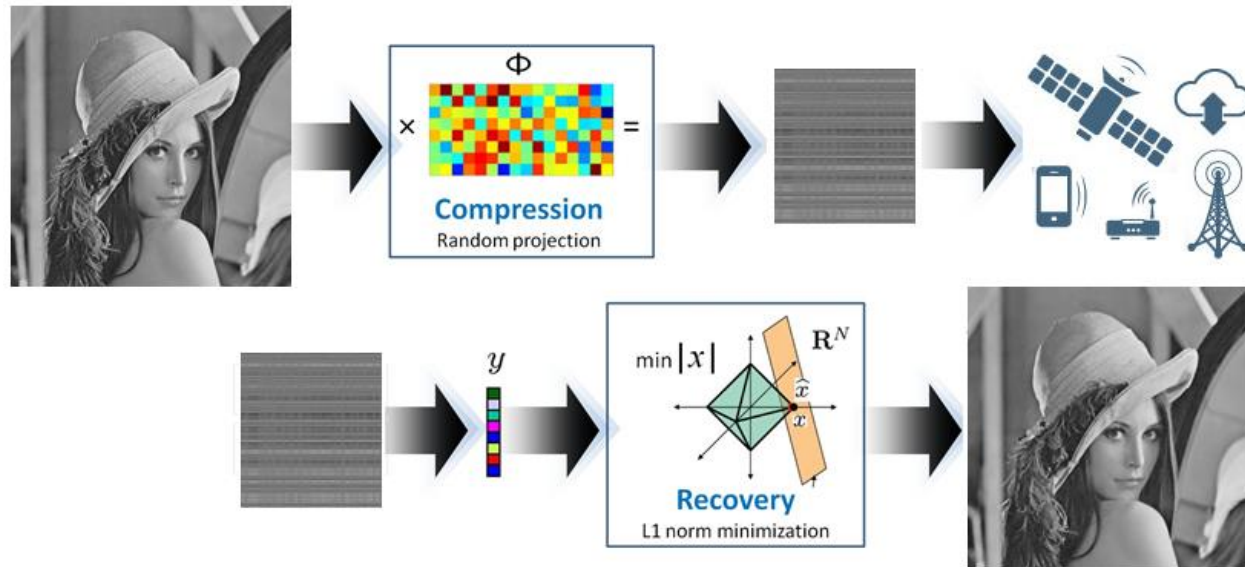
Thesis proposals

- ❑ **Title:** Body area network sensor authentication based on context co-presence (Autenticación de sensores en redes corporales basada en co-presencia contextual).
- ❑ **Objective:** To design and implement an authentication mechanism for sensors in body area sensor networks using contextual information, including acceleration, rate of turn, received signal strength information. The idea is to explore the possibility of using contextual information in order to authenticate legitimate network members.



Thesis proposals

- ❑ Title: Compressive sensing image compression and encryption (Compresión y cifrado de imágenes mediante sensado compresivo).
- ❑ Objective: To design and implement compressive sensing algorithms for images verifying the security level achieved compared to traditional cryptographic algorithms.



Resources

- ❑ In addition to the standard computing equipment, there are available smartphones, Wireless sensor network kits, Intel Internet of Things development kits, among other resources, to carry out the thesis research work.

Zolertia wireless sensor network platform



Intel IoT Development kit



DragonBoard 810



TI EZ430-RF2500 Wireless sensors



Nexus 6



Galaxy S6



More Information

For more information visit:

- <http://www.ciseg.cic.ipn.mx/>
- <http://www.cic.ipn.mx/~pescamilla/>

Or contact:

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