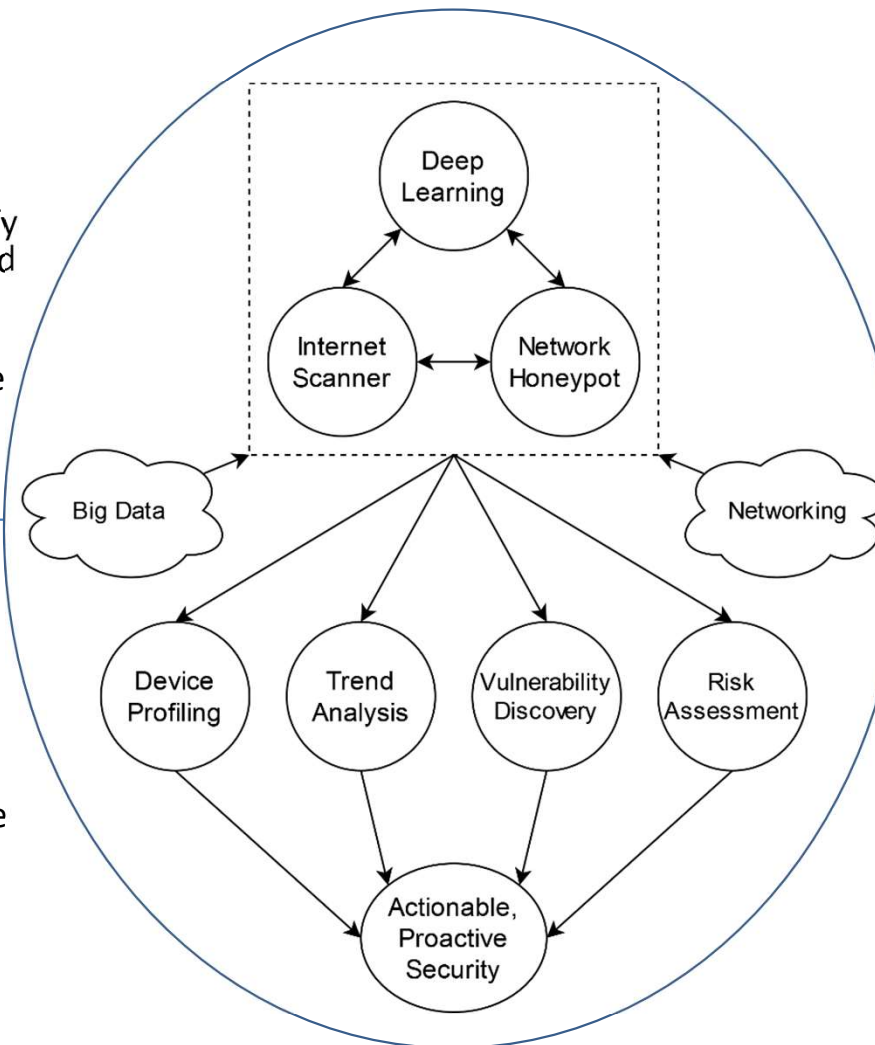# A Deep Learning Framework for Intelligent Active and Passive Measurements in the Age of Internet of Things

Challenge:

- Rapid proliferation of IoT and emerging threats signify the need for automated and efficient monitoring with actionable outputs.
- Gain more visibility into the Internet ecosystem by profiling active devices.

Solution:

- Leverage advances in ML/DL to accelerate and improve network measurement tools.
- *Key innovations:* Predictive scanning, ML-generated device profiles, intelligent network honeypots.

Scientific Impact:

- Automated, early, and actionable security alerts.
- Human-readable and ML-ready representations of networked devices.
- Novel and data-driven applications promoting the use of ML for security and measurement.

Broader Impact and Broader Participation:

- Prevent/reduce the impact of cyber-security incidents.
- Proactive solution producing actionable intelligence and fine-grained risk assessment.
- Interdisciplinary research opportunity combining both theory and practice.