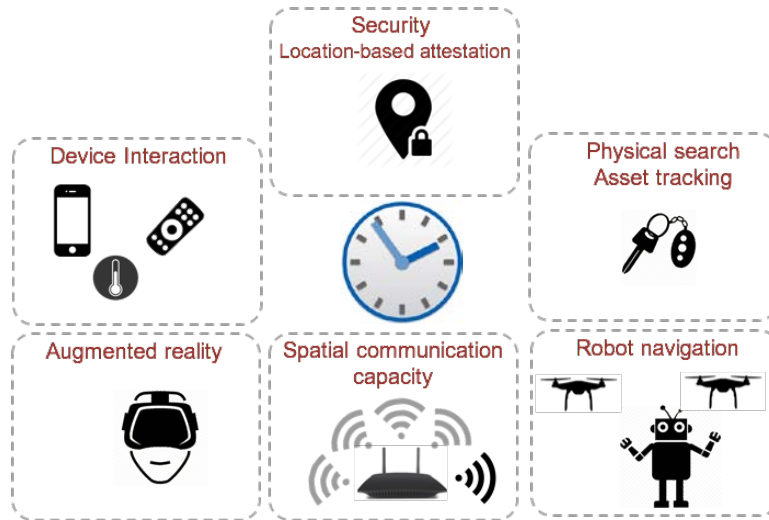# ROSELINE: Enabling Robust, Secure and Efficient Knowledge of Time

Anthony Rowe, Raj Rajkumar, Mani Srivastava, Sudhakar Pamarti, Joao Hespanha, Rajesh Gupta, Neal Patwari, Thomas Schmid
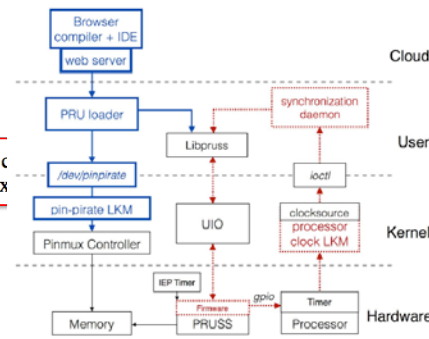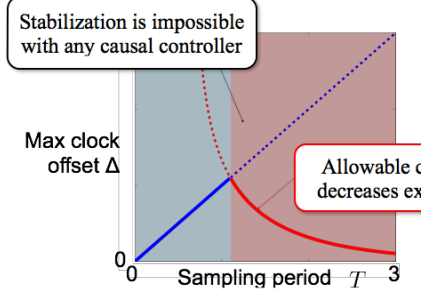
Challenge:

Rise of time-aware CPS applications vs. poor QoT arising from increased time uncertainty due to software, network, architecture, and adversarial factors

Solution:

Make quality of time visible and controllable in computing systems to enable enable robust and secure time-centric applications

Scientific Impact:

Fundamental QoT limits

Timeline programming for a measurable impact on QoT

Testbeds for fb control and ns wireless synchronization

Spatial RF imaging through collaborative MIMO

CYCLOPS: QoT on edge devices

ROSELINE: QoT across devices

ATOMS: QoT across edge & cloud

1 ns TOF, <5 ns inter-node, dcm localization

Broader Impact:

Robust CPS infrastructure

"Learning Glass' in online course at UCSB for all majors

Multiple UG and master's projects using instrumented stack & systems programming.