

The background of the slide features a large, faint watermark of the Rutgers University seal. The seal is circular and contains a sunburst in the center, with the words 'RUTGERS UNIVERSITY' and 'THE STATE UNIVERSITY OF NEW JERSEY' around the perimeter.

RUTGERS

THE STATE UNIVERSITY
OF NEW JERSEY

Security and Privacy Challenges in Smart Networks

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Network Services to Support Privacy-Preserving Learning?



~100 ECUs
and ~100
Sensors on
Internal
Buses,
GBs/hr



Waymo Autonomous Vehicle

<http://autoweek.com/article/autonomous-cars/honda-googles-waymo-chat-self-driving-collaboration>
<http://fortune.com/2017/03/27/waymo-self-driving-minivans-snow/>



Uber Self-Driving System

<https://www.bloomberg.com/news/features/2016-08-18/uber-s-first-self-driving-fleet-arrives-in-pittsburgh-this-month-is06r7on>

~2 million miles



Tesla AutoPilot

<http://www.businessinsider.com/teslas-biggest-competitor-with-driverless-tech-is-uber-2016-9>



Nvidia Self-Driving System

<https://www.gizmodo.com.au/2017/01/i-took-a-ride-in-nvidias-self-driving-car-and-didnt-die/>



Phone & Laptop



Smart vehicle



Home security



Medical Devices



Smart appliances



Payment

Tracking Every Touch



<i>User ID</i>	<i>Logging</i>
001	Windows design
002	Front door design
001	Roof design
002	Roof coloring
001	Back yard design
002	Back door design
...	...

Associating user ID to collaboration activities

Challenges

- Services to support privacy-preserving, large-scale learning
- Low-complexity primitives to secure the increasingly software-defined network infrastructure?
- Managing security for 100-1000 of devices per person
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