



浙江大学
ZHEJIANG UNIVERSITY

SENSING SECURITY FOR EMBEDDED SECURITY

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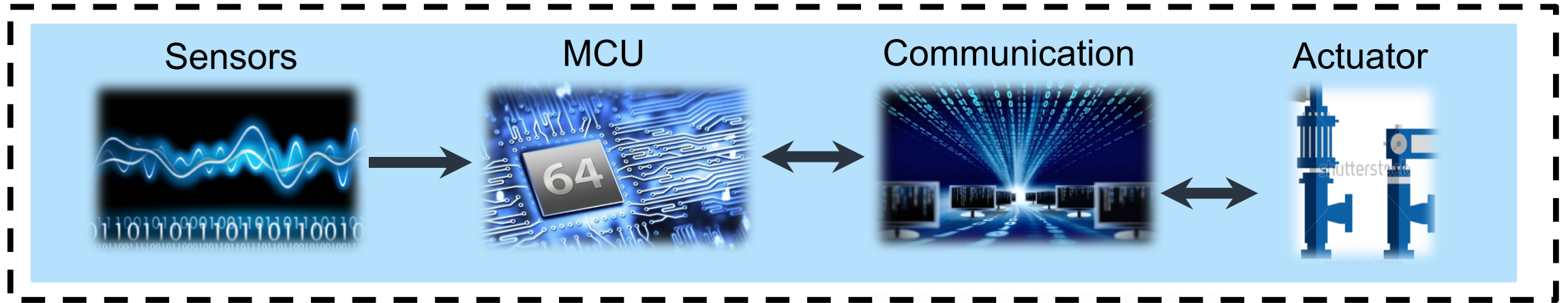
Leadership in Embedded Security Workshop



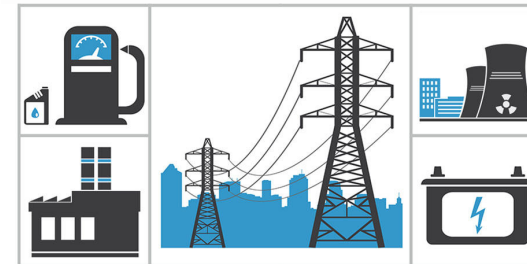
智能系统安全实验室
UBIQUITOUS SYSTEM SECURITY LAB.



A smart device → Sensors are every where



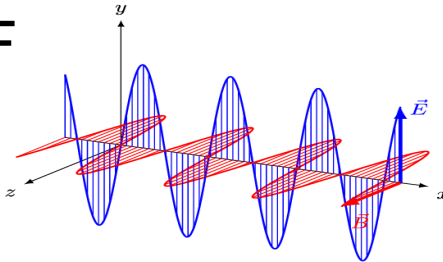
- Smartphone: >14 sensors
- Car: 60-100 sensor;
200 in the future.



A sensor is a proxy of the reality?

Malicious Signals

1. RF



2. Acoustic signals



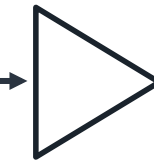
3. Lights

4. Magnets

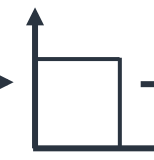
5. Heat



Sensor



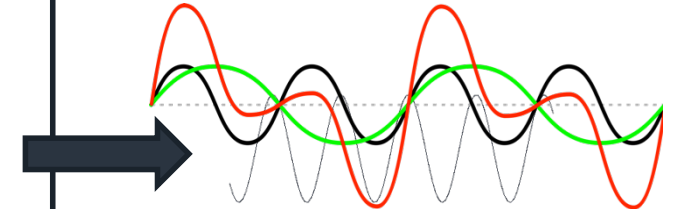
Amplifier



Low-pass Filter

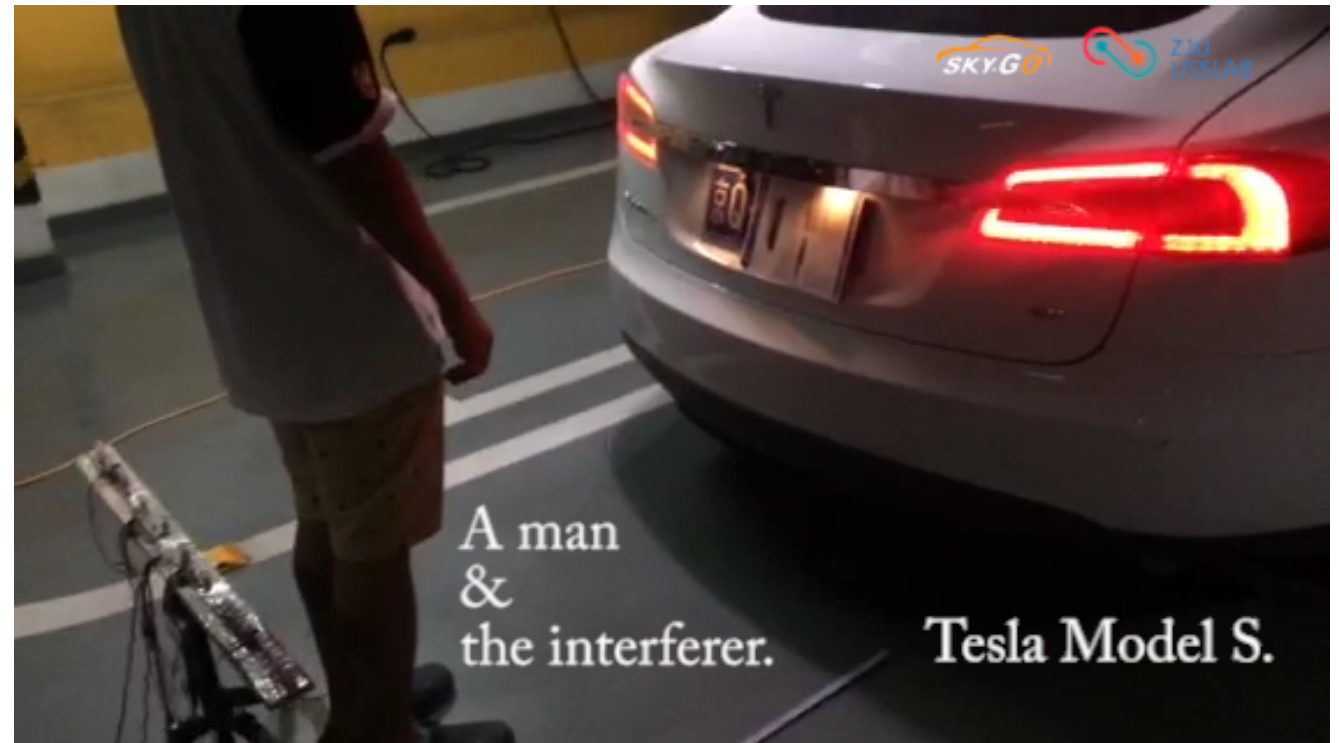


Analog to digital converter

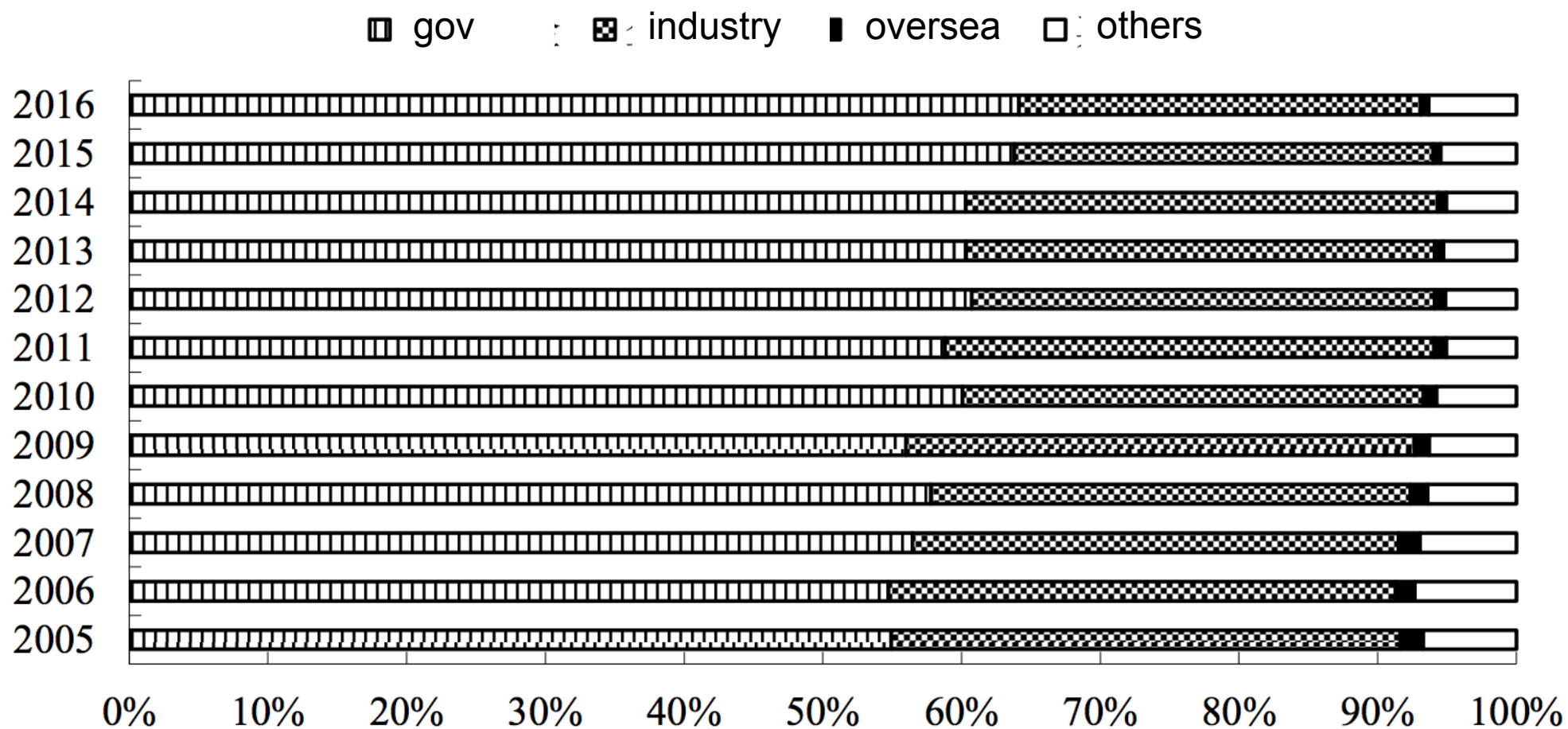


- Can we affect the integrity of sensors?
- How to protect the integrity of sensors?

Tesla Autopilot



Funds for Universities -- \$16 billion



China vs US

	Zhejiang Univ.	Univ. of South Carolina
Fund \$#	\$5-19 million	~\$400K
Project size	5-20 companies/University	1-3 PI
# of students	20	3
# of faculty members	1+	0
Funding from industry	\$1.5 million	0
Collaboration queries from industry	1/ week	0
Travel	> 1 / week	3 / year
Making appointment	~2 days	>1 month
CFP	Specific topics	Research Areas
Proposal review/commends	A few lines	Paragraphs of paragraphs
Criteria of proposal	The record of the PI Does the reviewer know the PI	The novelty of the proposal

THANK YOU

Improving the embedded security

- Joint effort of industry, government, academic
- Funding in China
 - Ministry of Science and Technology of China, R&D Focus program 2018
 - 9 sectors: **cyber security**, smart grids, Nano tech, Quantum computing, disruptive tech, large scientific equipment, protein & life science, global change and response, material genetic engineering
 - **122 projects**;
 - **\$330 million in total**
 - government funding agency: **\$10k-\$5 million/project**
- Fast & Big

R&D funds for schools

