The Session on Cyber Security

Automotive Cyber-Physical Security Testbeds and Applications

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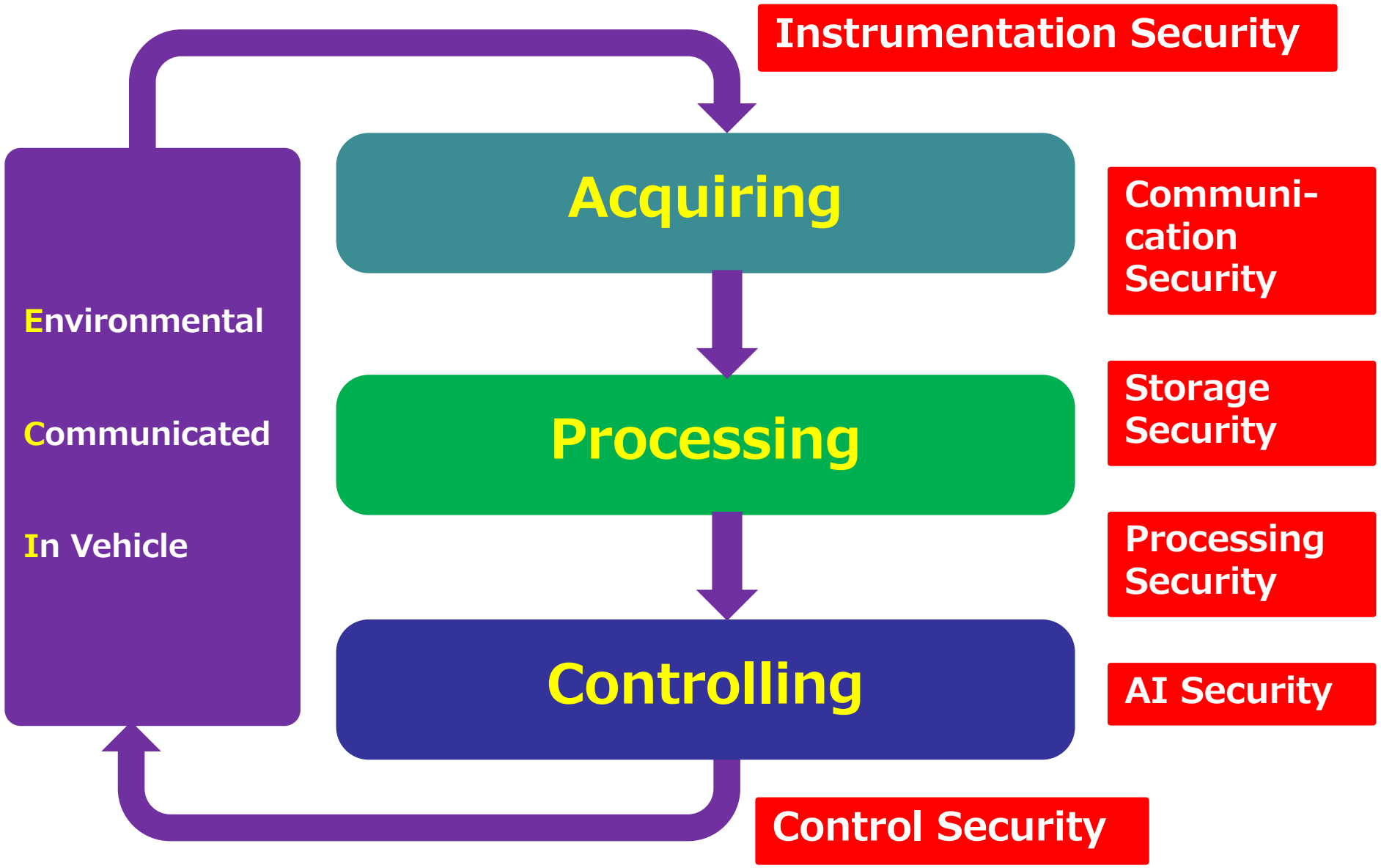
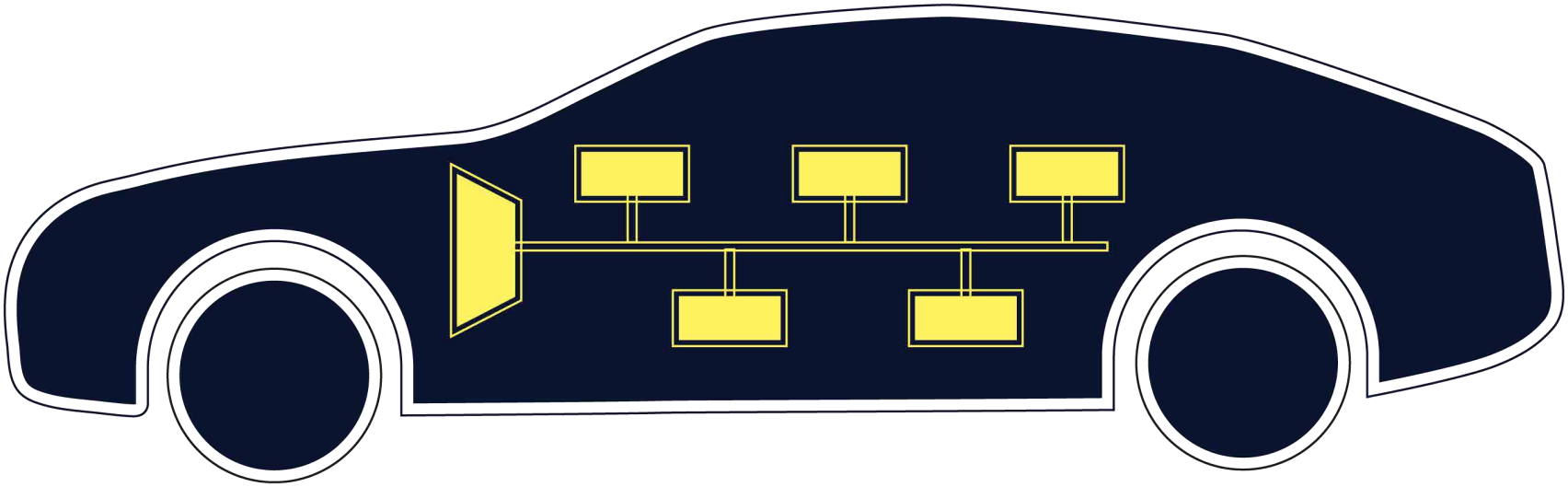
Major Automotive Cyber Physical Security Issues



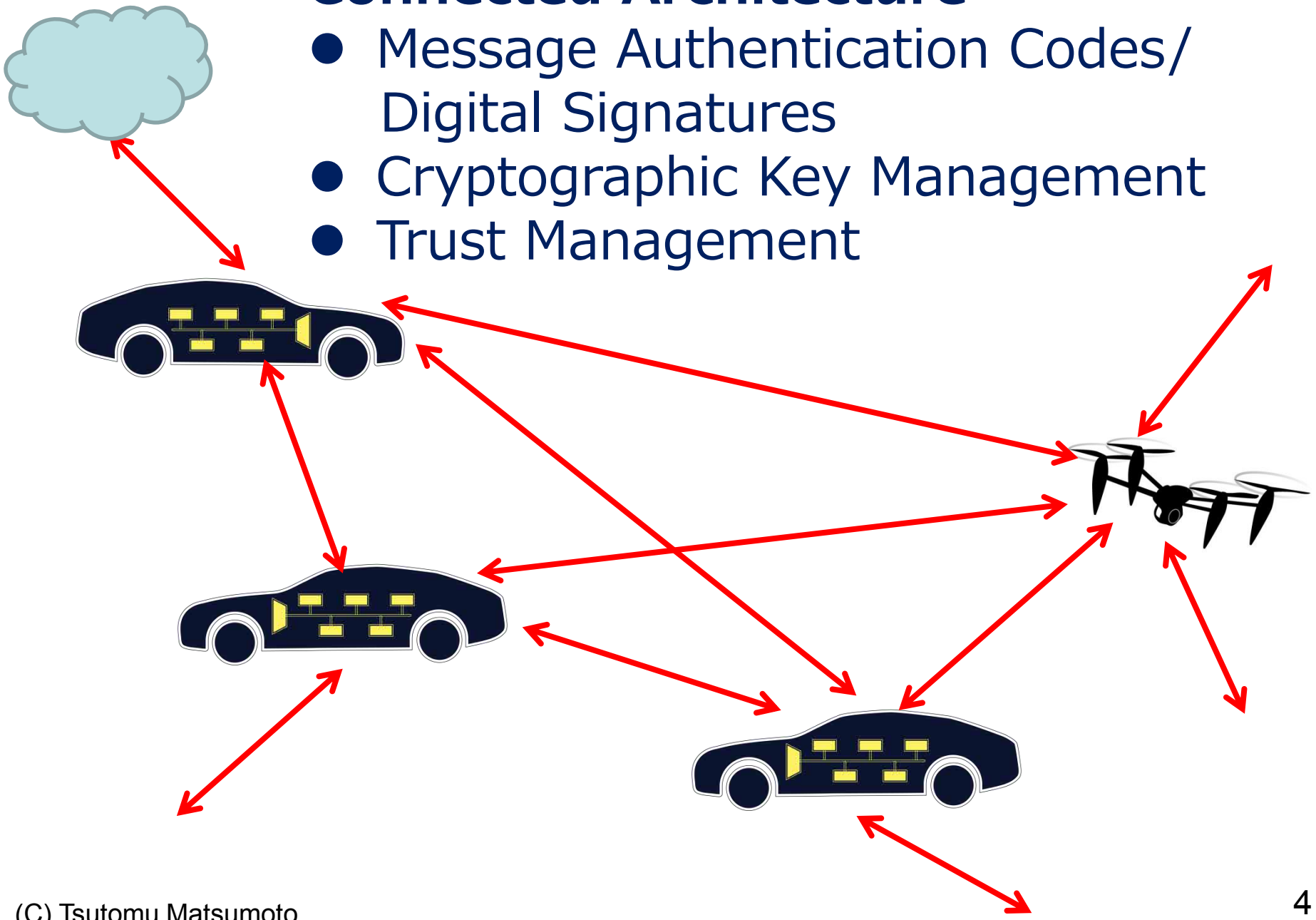
In-Vehicle Network

- Message Authentication Codes/ Digital Signatures
- Cryptographic Key Management
- Anomaly Detection
- Security Supply Chain Management



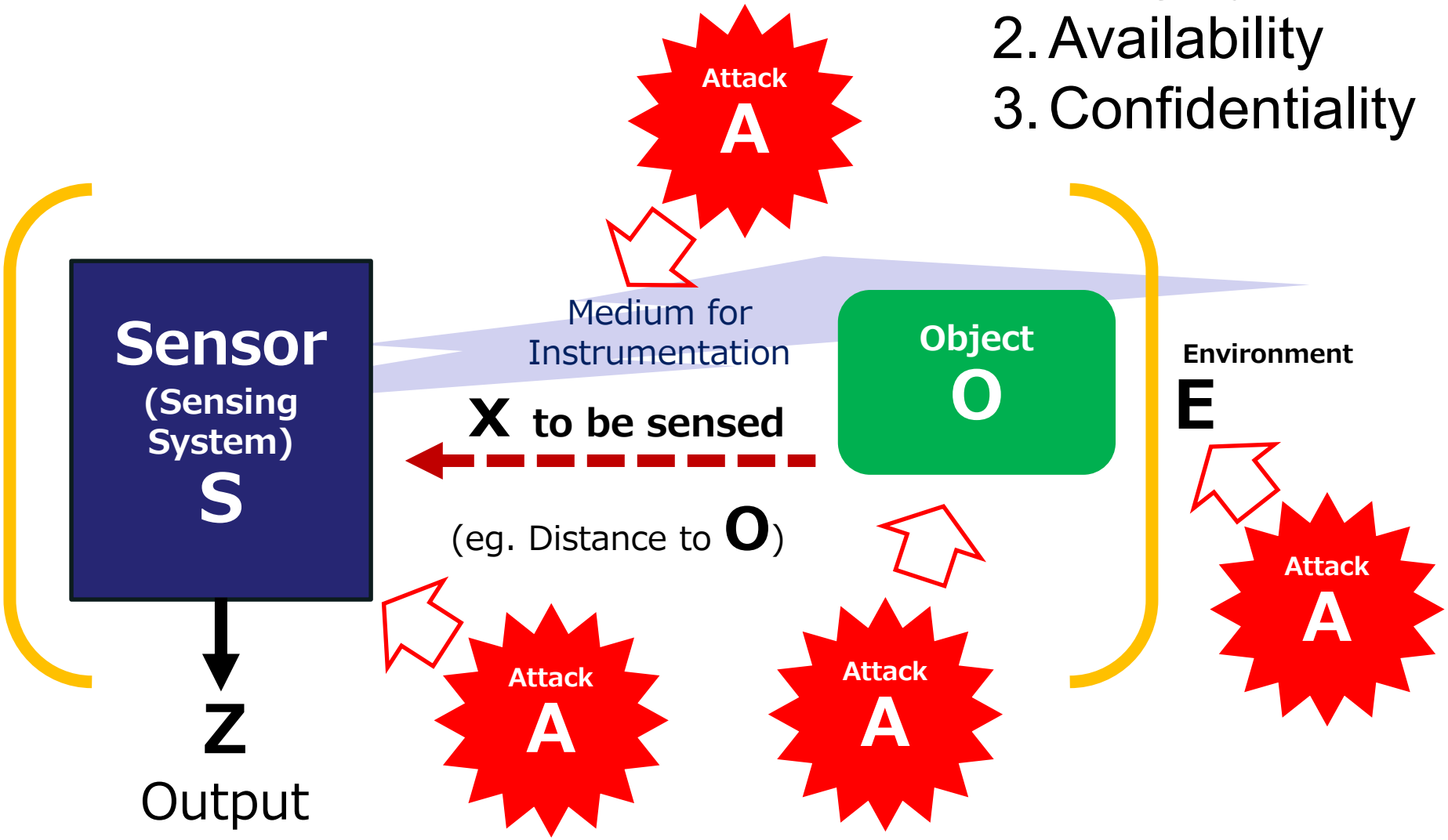
Connected Architecture

- Message Authentication Codes/ Digital Signatures
- Cryptographic Key Management
- Trust Management



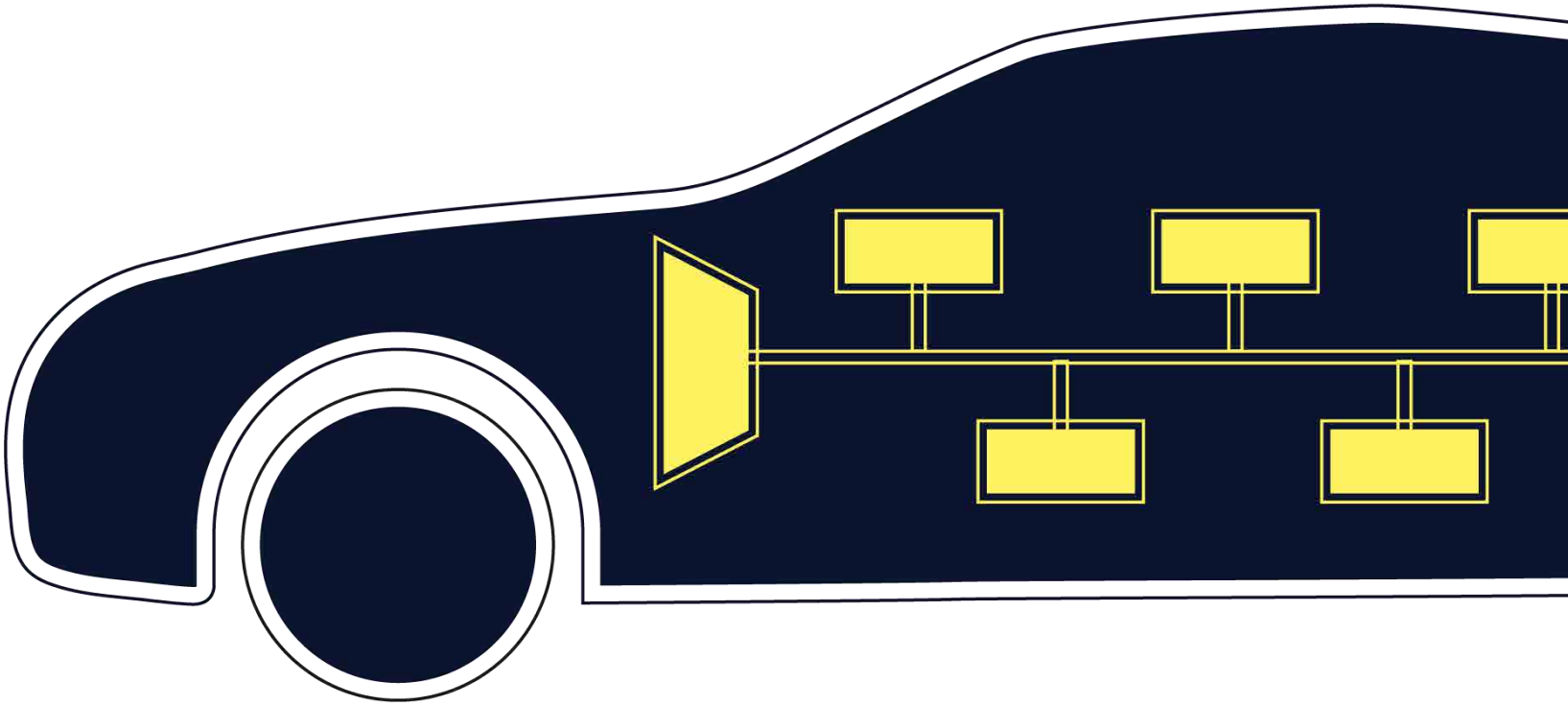
Threats to Instrumentation

Attack to
1. Integrity
2. Availability
3. Confidentiality



Automatic Driving

- Control Mechanisms
  - Algorithms
  - Data



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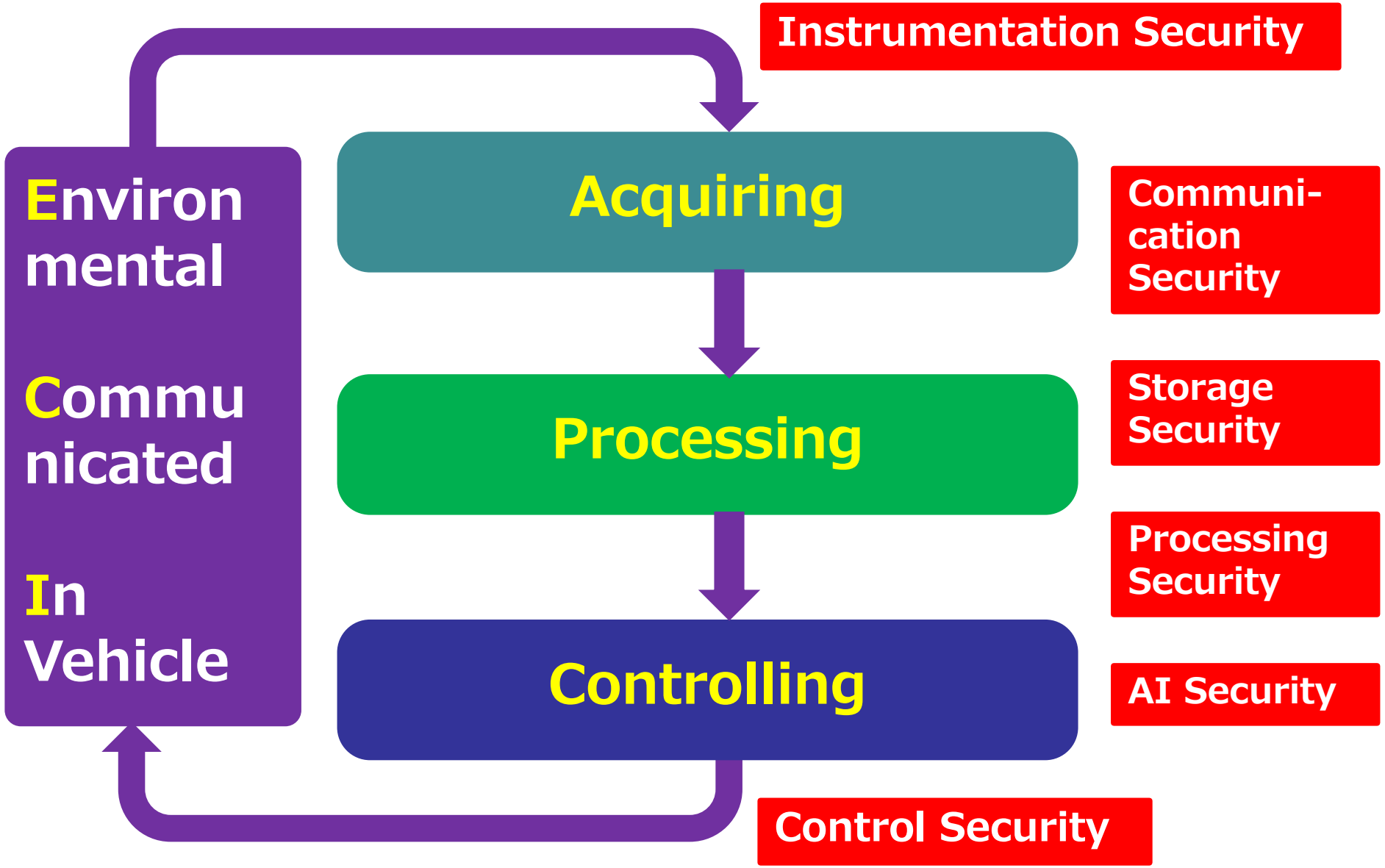
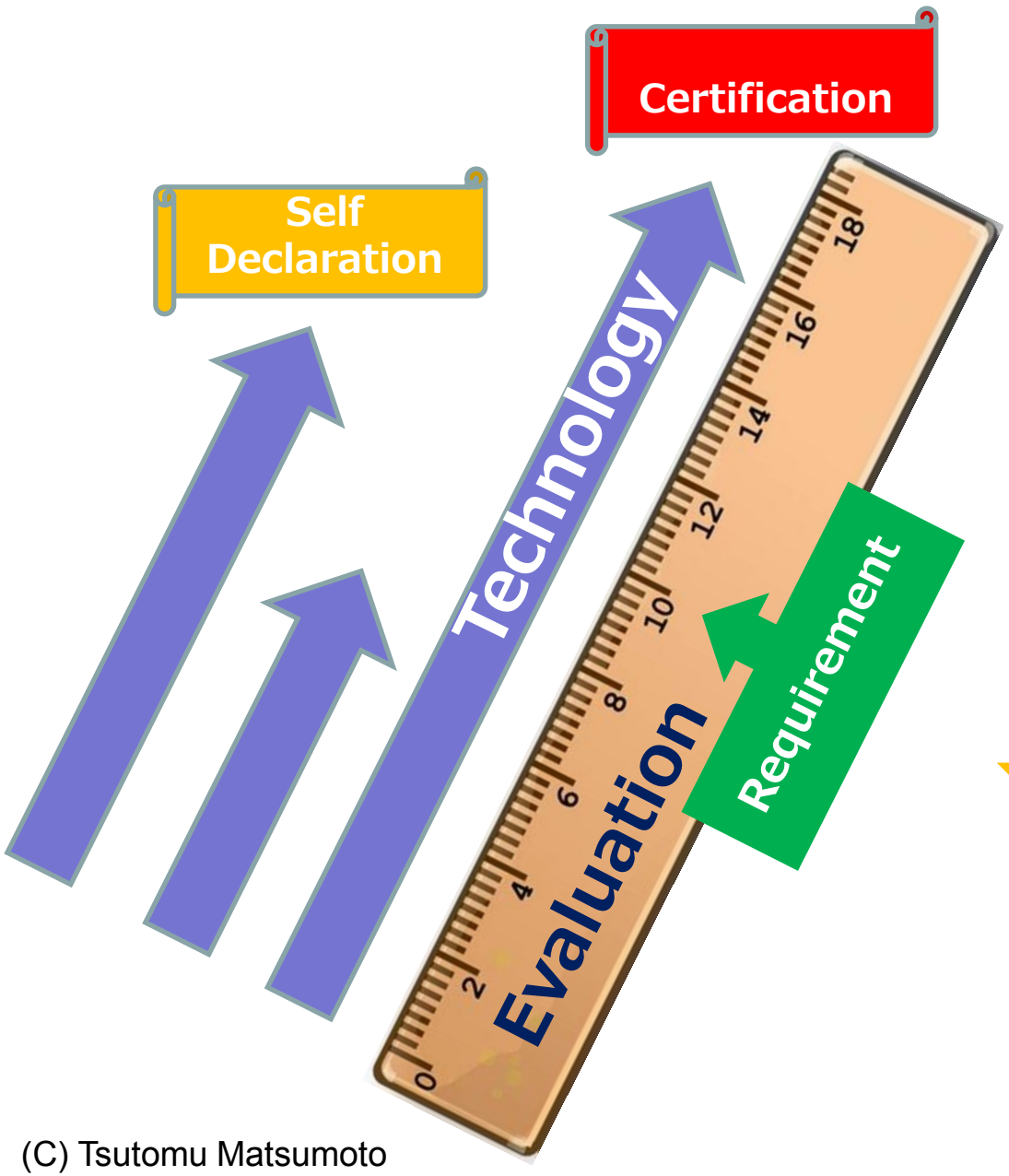


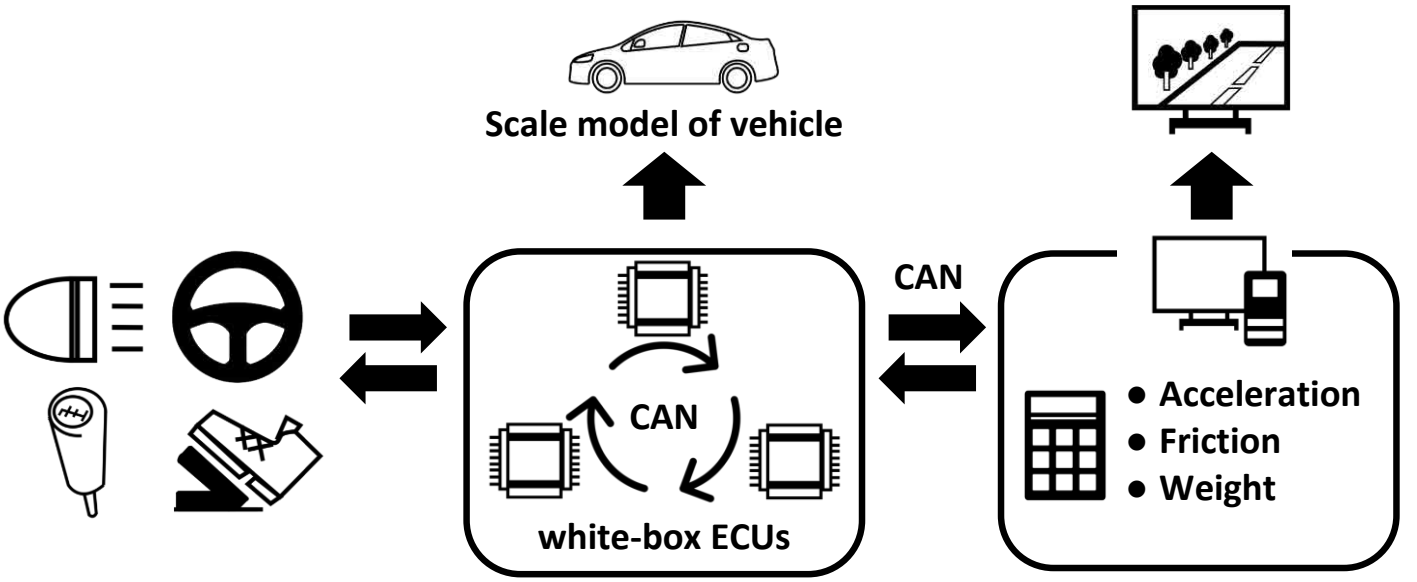
Automotive Cyber Physical Security



Needs for Developing

1. Evaluation Technologies
2. Security Enhancement Technologies
3. Security Assurance Schemes
   - Certification
   - Self Declaration

Superior Automotive Security Testbeds for Responsible Examination and Development of Offence and Defense Technologies



PASTA

A Joint Research by

TOYOTA InfoTech

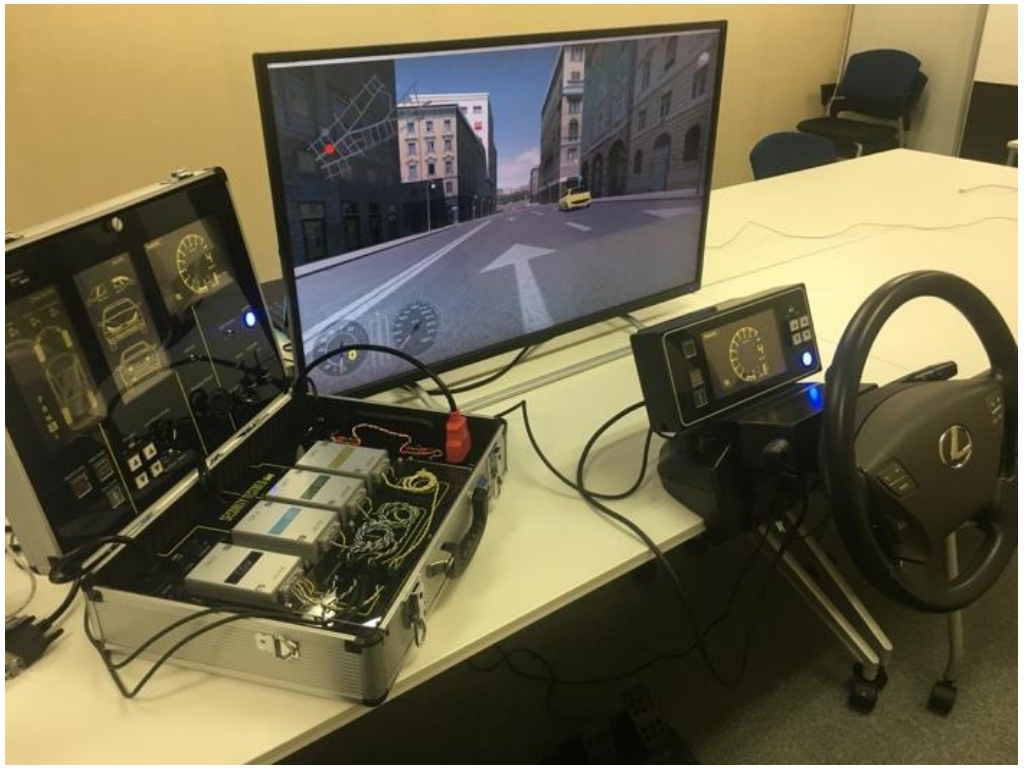
and

YNU YOKOHAMA National University

Details:
Black Hat Europe 2018

Portable Automotive Security Testbed with Adaptability

PASTA in attaché case



PASTA

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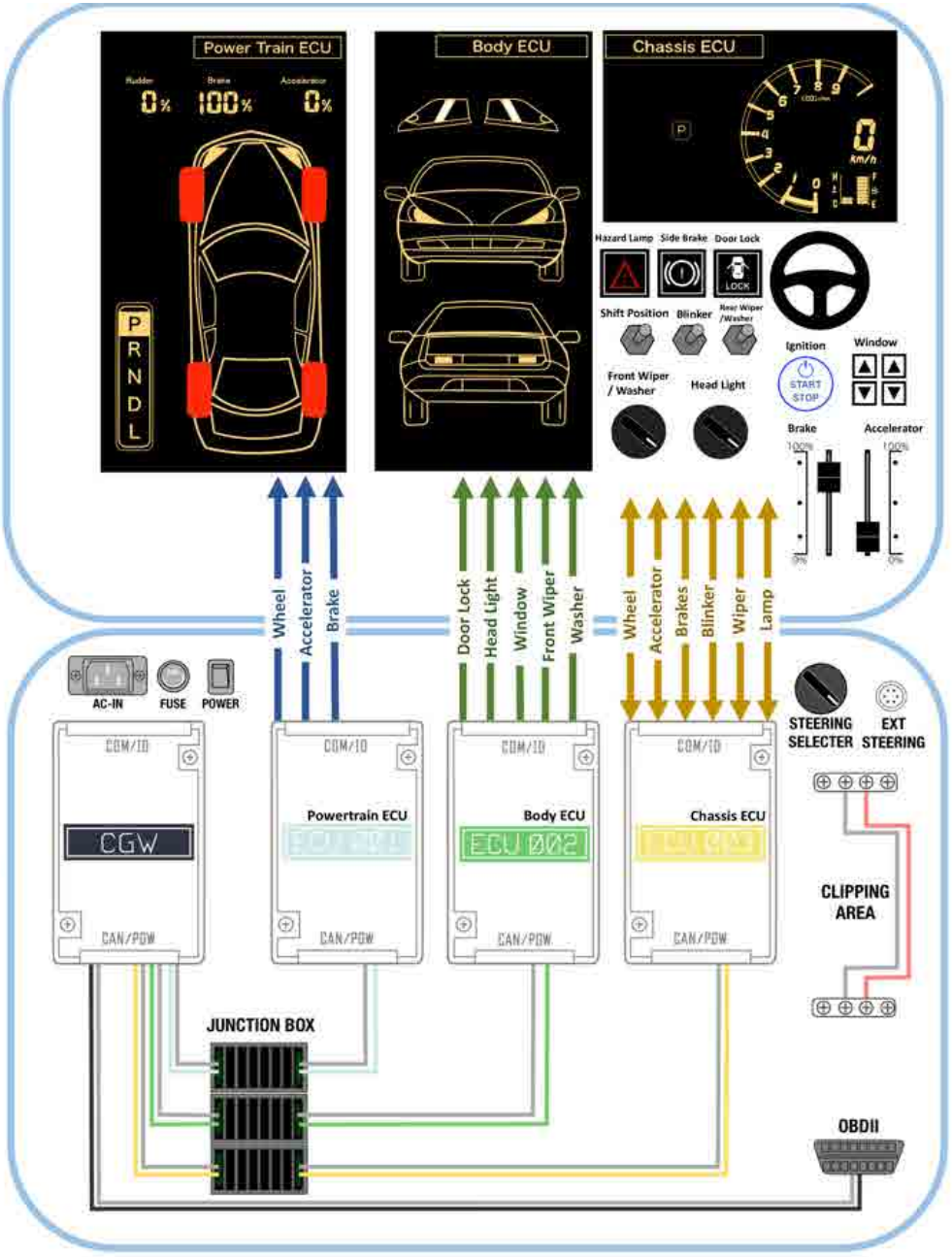
Details:
Black Hat Europe 2018

- Accelerating Security Research by Rich Adaptability and Portability
- Providing Standard Development Platform
- Visualization of CAN Communication Results
- Educational Use
  - Applied to Class “Security Analysis” at YNU

Panels on upper side of PASTA displaying vehicle status

White-box ECUs

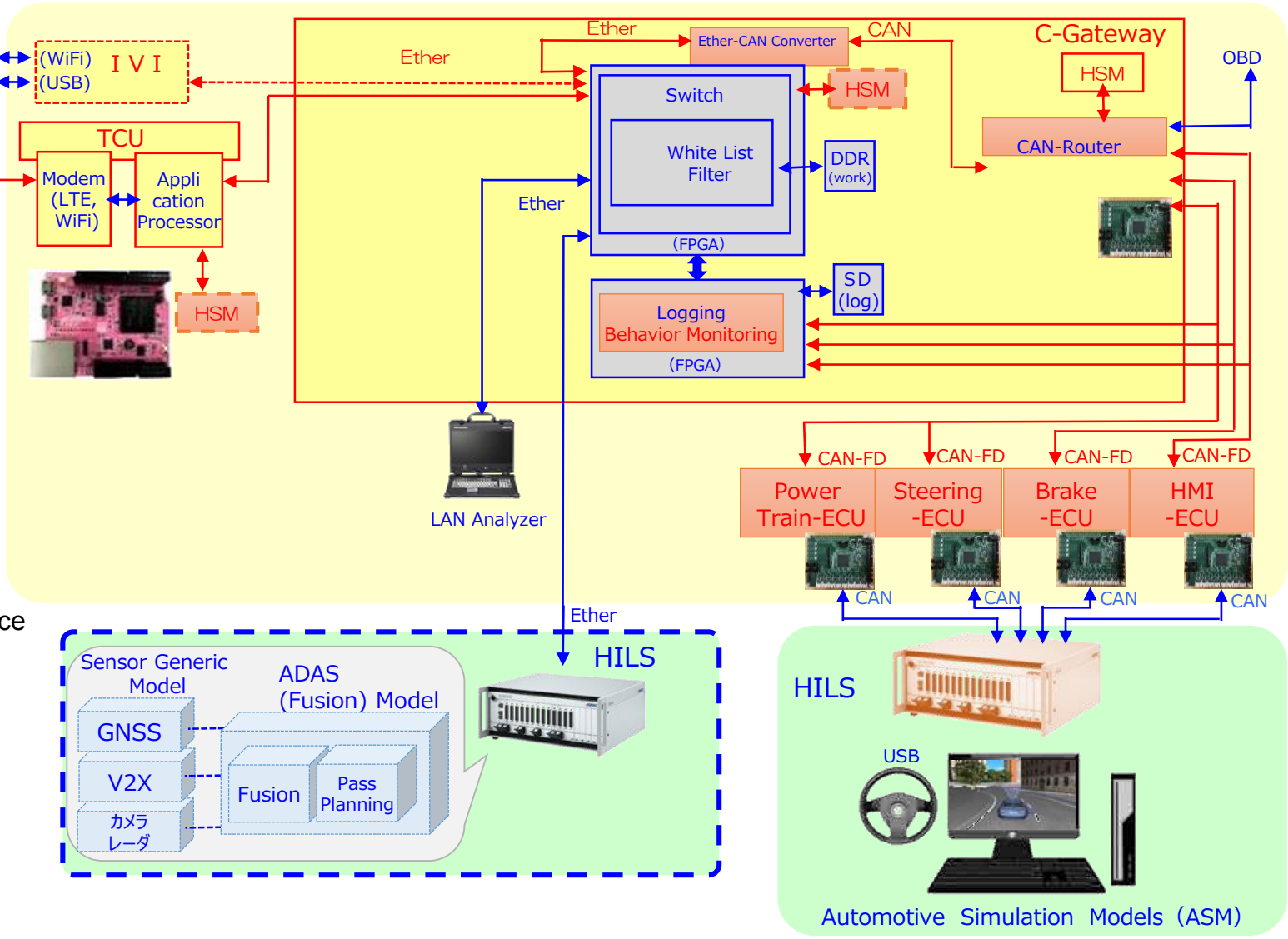


Structure of a Version of PASTA

AOBA

Security Testbed Being Developed by METI/JARI Project

Pseud In-Vehicle Network

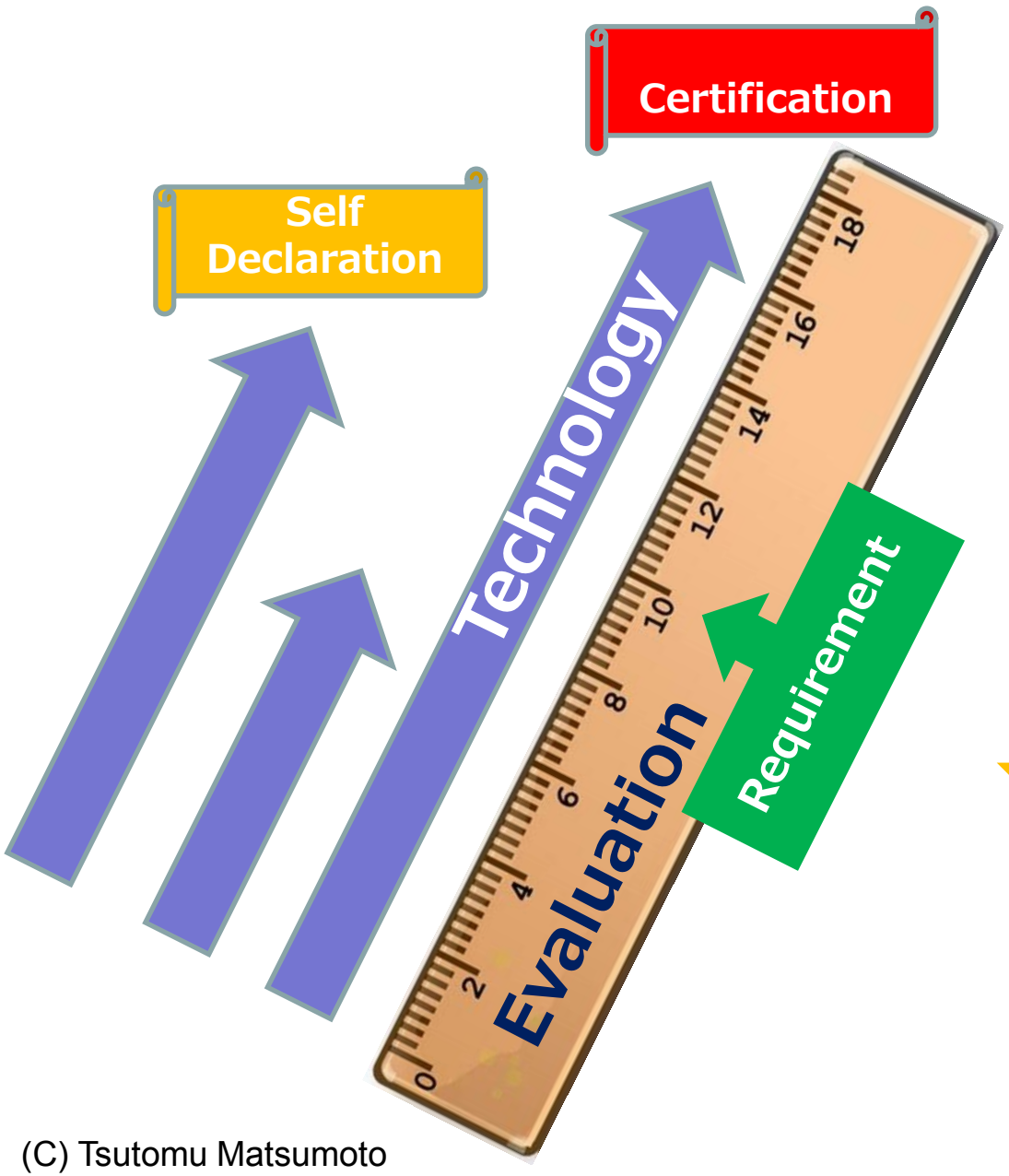


2018/6/8
dSPACE User Conference

2018/7/20
CDNLive Japan 2018

Figures and Pictures by Courtesy of JARI

Automotive Cyber Physical Security



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Superior Automotive Security Testbeds for Responsible Examination and Development of Offence and Defense Technologies

Thank you!

Tsutomu Matsumoto

URL: http://ipsr.ynu.ac.jp/

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IAS Institute of Advanced Sciences Yokohama National University