



**INDustrial TECHNOLOGIES 2018**  
Innovative Industries for Smart Growth



# INDTECH2018

## Innovative industries for smart growth

29-31 October, 2018  
Vienna, Austria

[www.indtech2018.eu](http://www.indtech2018.eu)  
[@IndTech2018](https://twitter.com/IndTech2018)  
#IndTech2018

PILLAR 2

Session 2.6

Artificial Intelligence, Industry and Ethics

Prof. dr. Philip Brey

University of Twente

31 October 2018

**sienna.**

**Disclaimer:** This presentation and its contents reflects the view of the presenter and not the view of SIENNA or the European Union.

## What AI means for industry

- Smart planning and scheduling
- Smart sensing and measuring
- Smart management and optimization
- Smart predictive modelling
- Smart communication
- Smart physical labour (robotics)

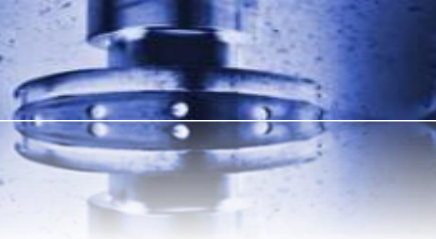
### Application Domains:

Transportation and infrastructure, e.g.

- Smart scheduling for transportation services
- Self-driving vehicles
- Energy management, optimization and distribution
- Sensing and predictive analysis for water management



**SIENNA.**



## Finance and insurance, e.g.

- Algorithmic trading and high-frequency trading
- Automated financial advice and portfolio management
- Underwriting for credit and insurance industries

## Healthcare, e.g.

- Clinical decision support
- Patient monitoring and coaching
- Preventive medicine
- Surgical robots
- Care robots

## Retail and marketing, e.g.

- Inventory and supply chain automation
- Personalisation and recommender systems in marketing and sales
- Integration of biometric data in retail
- Cross-platform marketing and retail practices

## Agriculture, e.g.

- Deep learning systems for crop and soil health monitoring.
- Predictive analytics for weather, crop sustainability, and disease
- Robots for weed control, fertilization, harvesting, maintenance, herding, milking, slaughtering

**sienna.**





## Ethical issues with AI

- **Loss of control:** will AI decide for us and tell us what to do?
- **Jobs:** will AI lead to mass unemployment?
- **Discrimination:** how to remove biases from AI?
- **Safety and error:** what if AI or robots make mistakes?
- **Security:** What are the risks of hacking?
- **Social inequality:** who will benefit from AI and who will be harmed?
- **Privacy:** what do AI programs do with our personal data?
- **Responsibility/accountability:** who is responsible for AI decisions and actions?

**sienna.**

## AI and Ethics in Industry

*Responsible AI: AI governed by ethical guidelines and responsible practices*

- Responsible automation and job restructuring
- Respecting privacy of customers and employees
- Avoiding bias and discrimination in AI systems
- Reducing risks of error, safety failures and security risks
- Distributing responsibilities for unintended consequences
- Maintaining meaningful human control