

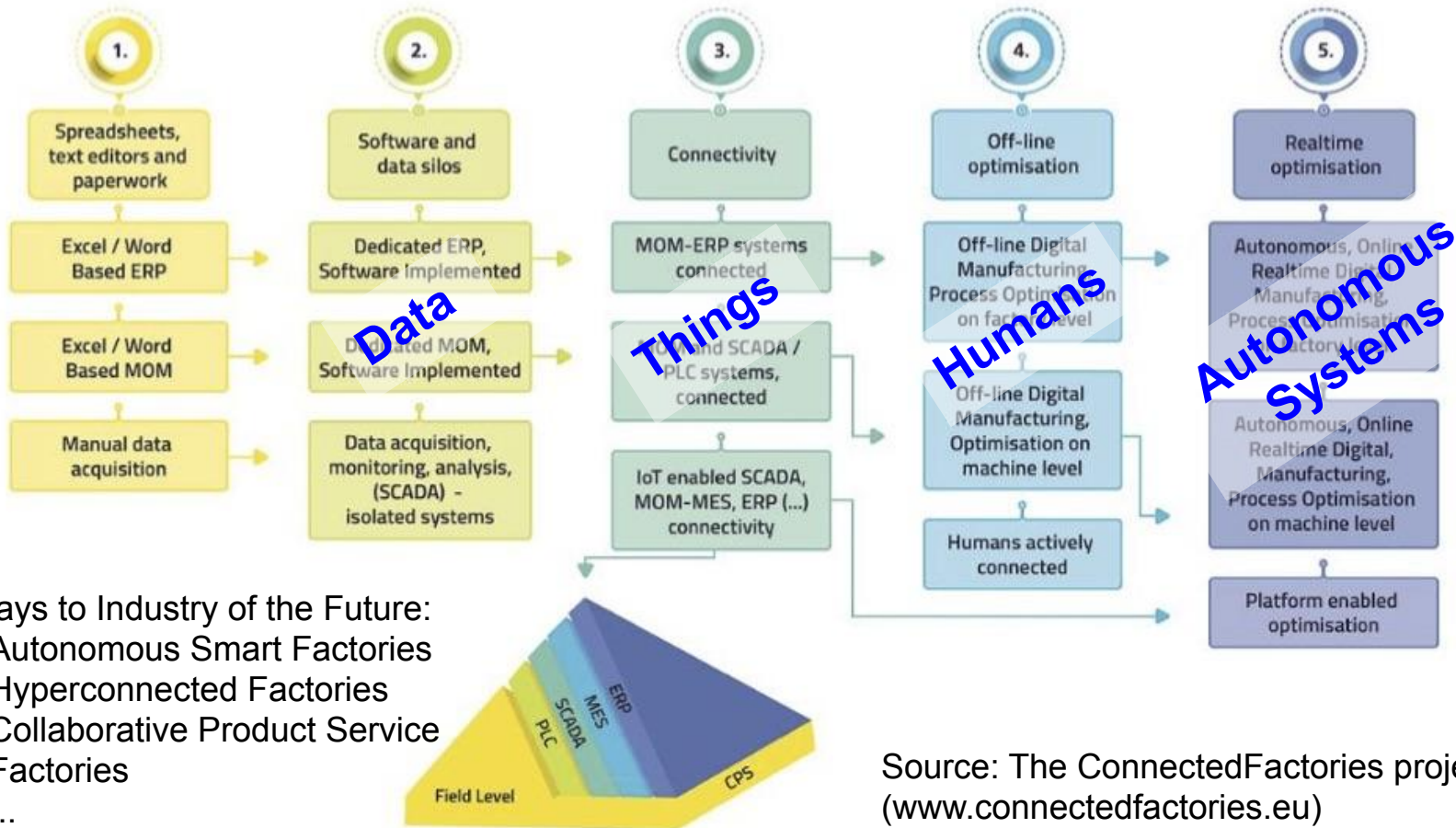
# Summer School

## “AI for Industry 4.0”

27th to 31st of July 2020

Saint-Etienne, France - Nuremberg, Germany  
St Gallen, Switzerland - several places in the World

# Context and Motivation



Pathways to Industry of the Future:

- Autonomous Smart Factories
- Hyperconnected Factories
- Collaborative Product Service Factories
- ...

Source: The ConnectedFactories project  
([www.connectedfactories.eu](http://www.connectedfactories.eu))

# Goal of the Summer School

To investigate how Artificial Intelligence technologies can tackle the challenging issues of interoperability, data processing and autonomy to contribute to a trustful and responsible intelligent infrastructure.

Focus on Artificial Intelligence technologies pertaining to:

- Knowledge Representation and Reasoning
- Autonomous Agents and Decentralized Artificial Intelligence
- Responsible Artificial Intelligence

# Web of Things (Monday 27th)

## Keynote:

- The Spirits of Web of Things Past, Present, and Yet to Come

**Matthias Kovatsch (Principal Researcher Huawei, Germany)**



## Lectures:

- From Internet of Things Platforms to Web of Things User Agents

**Andreas Harth (Professor University of Erlangen-Nuremberg, Germany)**



- The Web of Things and Hypermedia for Smart Devices

**Simon Mayer (Professor University of St. Gallen, Switzerland)**



# Knowledge Graph (Tuesday 28th)

## Keynote:

- Machine Learning with Knowledge Graphs

**Volker Tresp (Distinguished Research Scientist, Siemens, Professor at LMU, Germany)**



## Lectures:

- Distributed Knowledge Graphs

**Tobias Käfer (Post doctoral research at Karlsruhe Institute of Technology Germany)**



# Autonomous Agents (Wednesday 29th)

## Keynote:

- Multi-Agent Systems in the context of Industry 4.0 - challenges and reusable pattern

**Birgit Vogel-Heuser (Professor Dr-Ing. At Technische Universität München, Germany)**



## Lectures:

- Multi-Agent Oriented Programming - Programming multi-agent systems using JaCaMo

**Jomi Fred Hübner (Associate Professor at University of Santa Catarina, Brazil)**



# Responsible and Trustworthy AI (Thursday 30th)

## Keynote:

- When data is the new oil, it is our role to prevent the blowout!

**Marc Oliver Pahl (Research director at IMT Atlantique, France)**



# AI for Industry 4.0 (Friday 31st)

## Keynote:

- Emergence of the Sentient Web and the revolutionary impact of Cognitive AI

**Dave Raggett (member of W3C's European staff, England)**





# Hackathon (27th to 31st)

Work in teams on a week-long coding challenge integrating technologies encompassing all topics presented at the summer school.





# Agenda

Web of Things	Knowledge Graph	Autonomous Agents	Responsible and Trustworthy AI	AI for Industry 4.0
July, 27	July, 28	July, 29	July, 30	July, 31
8:30-9:00 Connection/Welcome	8:30-9:00 Connection/Welcome	8:30-9:00 Connection/Welcome	8:30-9:00 Connection/Welcome	8:30-9:00 Connection/Welcome
9:00 - 9:30 Opening Session				
9:30 - 10:30 Keynote Talk Matthias Kovatsch <a href="#">The Spirits of Web of Things Past, Present, and Yet to Come</a>	9:00 - 10:00 Keynote Talk <a href="#">Volker Tresp</a> <a href="#">Machine Learning with Knowledge Graphs</a>	9:00 - 10:00 Keynote Talk <a href="#">Birgit Vogel-Heuser</a> <a href="#">Multi Agent Systems in the context of industry 4.0 - challenges and reusable pattern</a>	9:00 - 10:00 Keynote Talk <a href="#">Marc-Oliver Pahl</a> <a href="#">When data is the new oil, it is our role to prevent the blowout!</a>	9:00 - 10:00 Keynote Talk <a href="#">Dave Raggett</a> <a href="#">Emergence of the Sentient Web and the revolutionary impact of Cognitive AI</a>
10:30 - 11:00 Break	10:00 - 10:30 Break	10:00 - 10:30 Break	10:00 - 10:30 Break	10:00 - 10:30 Break
11:00 - 12:30 Lecture <a href="#">Andreas Harth</a> <a href="#">From Internet of Things Platforms to Web of Things User Agents</a>	10:30 - 12:00 Lecture <a href="#">Tobias Käfer</a> <a href="#">Distributed Knowledge Graphs</a>	10:30 - 12:00 Lecture <a href="#">Jomi Fred Hübner</a> <a href="#">Multi-Agent Oriented Programming -- Programming Multi-Agent Systems Using JaCaMo</a>	10:30 - 12:00 Hackathon Work in Groups	10:30 - 12:30 Hackathon Presentations
12:30 - 13:30 Lunch	12:00 - 13:30 Lunch	12:00 - 13:30 Lunch	12:00 - 13:30 Lunch	12:30 - 14:00 Lunch
13:30 - 15:00 Lecture <a href="#">Simon Mayer</a> <a href="#">The Web of Things and Hypermedia of Smart Devices</a>	13:30 - 15:00 Lecture <a href="#">Tobias Käfer</a> <a href="#">Distributed Knowledge Graphs</a>	13:30 - 15:00 Lecture <a href="#">Jomi Fred Hübner</a> <a href="#">Multi-Agent Oriented Programming -- Programming Multi-Agent Systems Using JaCaMo</a>	13:30 - 15:00 Hackathon Work in Groups	
15:00 - 15:30 Break	15:00 - 15:30 Break	15:00 - 15:30 Break	15:00 - 15:30 Break	
15:30 - 18:30 Hackathon Work in Groups	15:30 - 18:30 Hackathon Work in Groups	15:30 - 18:30 Hackathon Work in Groups	15:30 - 18:30 Hackathon Work in Groups	
18:30 - 18:45 Hackathon Wrapup	18:30 - 18:45 Hackathon Wrapup	18:30 - 18:45 Hackathon Wrapup	18:30 - 18:45 Hackathon Wrapup	

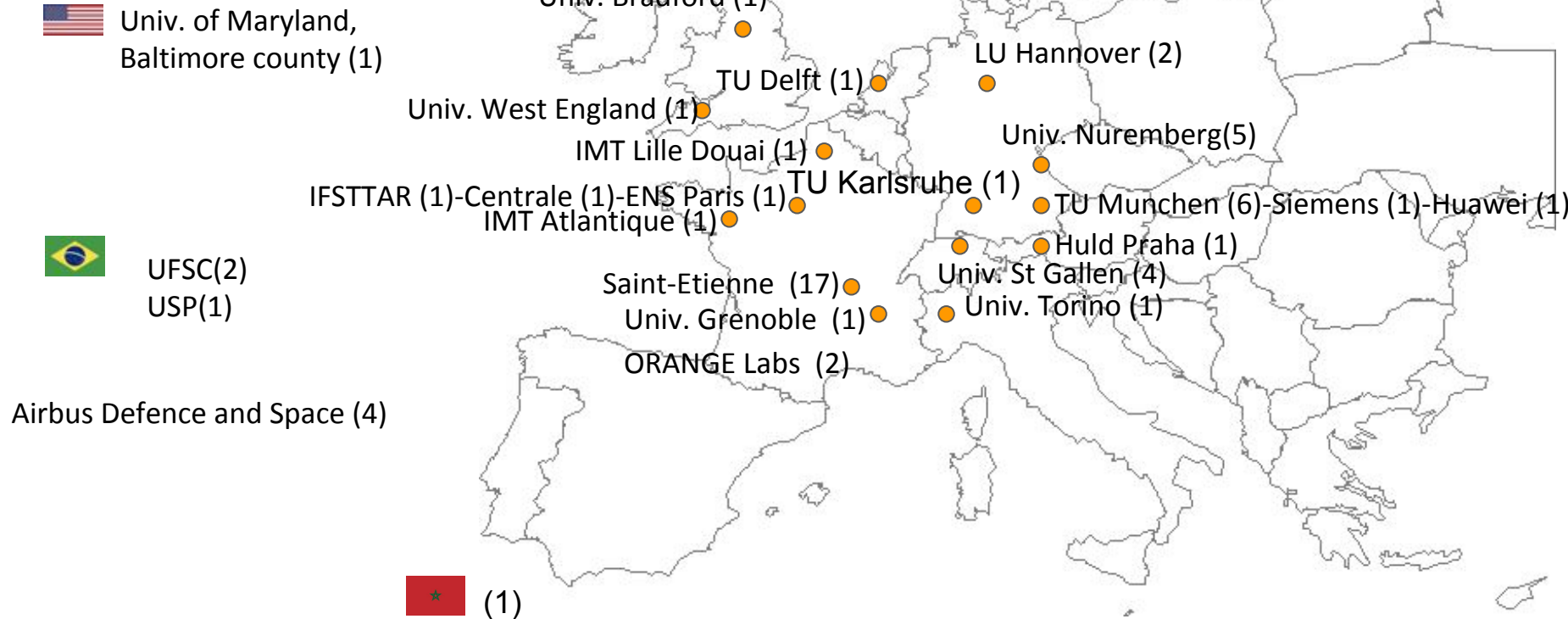
# Practical Organization

- Please connect between **8:30 AM and 9:00 AM**.
- Keynotes and lectures:
  - The participant link to attend all the keynotes and lectures is  
**<https://zoom.us/j/364777584>**
  - Keynotes and lectures will be recorded.
  - During the keynotes and lectures, keep your microphone muted and your camera inactive
- Questions, Discussions:
  - Zoom chat
  - Mattermost:  
[https://mattermost.emse.fr/signup\\_user\\_complete/?id=q9mi3todptbw7dat61hpweni4w](https://mattermost.emse.fr/signup_user_complete/?id=q9mi3todptbw7dat61hpweni4w)
  - Gitlab: <https://gitlab.emse.fr/ai4industry/hackathon/-/wikis/home>

# Mattermost Channels

- **#general**: channel for general discussion, general announcement, etc
- **#socializing**: channel for presentation of each participant, developing partnerships, etc
- **#keynotes**: channel for questions and discussions in relation to the keynotes
- **#wot**: channel for questions and discussions in relation to lectures and hackathon about Web of Things
- **#kg**: channel for questions and discussions in relation to lectures and hackathon about Knowledge Graph
- **#aamas**: channel for questions and discussions in relation to lectures and hackathon about Autonomous Agents and Multi-Agent Systems
- **#updates**: all important announcements will be posted here from the organizers team. Please keep this channel spam free. Only organizers are allowed to post.
- **#helpdesk**: to submit request for help on technical problems related to the global functioning of the summer school
- **#random**: feel free to go wild with funny memes, news or interesting information

# 59 participants



# Acknowledgments

- Keynote speakers, Lecturers, Tutors, Contributors to the Hackathon
- Sponsors:



Université  
franco-allemande  
Deutsch-Französische  
Hochschule



**german-french academy  
for the industry of the future**  
founded by IMT and TUM



**Institut Mines-Télécom**

# Announcements



<https://summerschool20.future-iot.org/>

Winter School on Data Sharing for Manufacturing -  
Dortmund, 2-4 December 2020 (organized by Dortmund Univ. IMT, IDSA)



# We wish you a fruitful and pleasant Summer School

Olivier Boissier

Victor Charpenay

Andrei Ciortea

Andreas Hart



Maxime Lefrançois

Simon Mayer

Pierre Maret

Antoine Zimmermann

