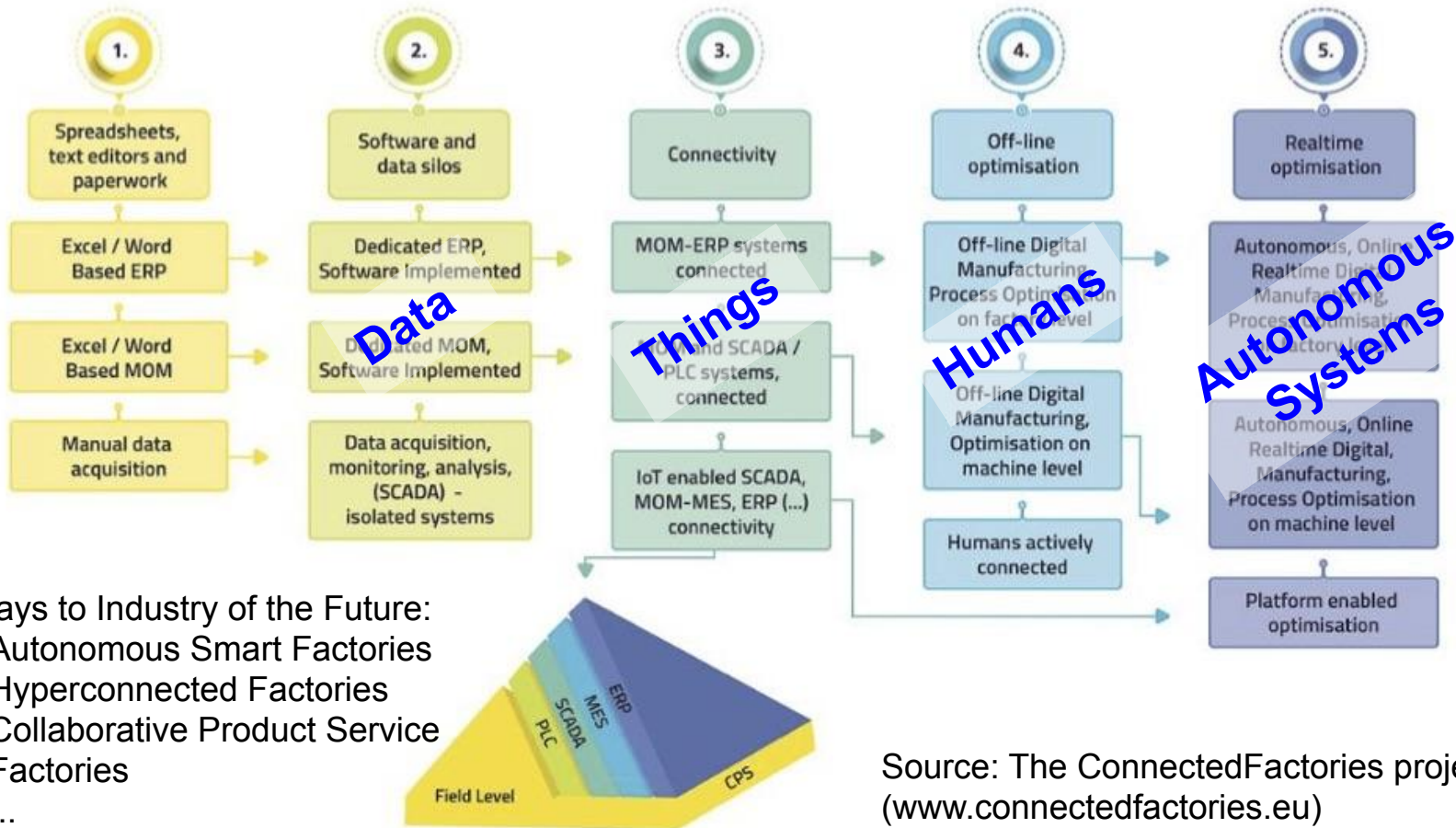# Summer School
"AI for Industry 4.0"

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)

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 - Programing 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 (Wednesday 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 Openning Session 9:30 - 10:30 Keynote Talk Matthias Kovatsch The Spirits of Web of Things Past, Present, and Yet to Come	9:00 - 10:00 Keynote Talk Volker Tresp Machine Learning with Knowledge Graphs	9:00 - 10:00 Keynote Talk Birgit Vogel-Heuser Multi Agent Systems in the context of industry 4.0 - challenges and reusable pattern	9:00 - 10:00 Keynote Talk Marc-Oliver Pahl When data is the new oil, it is our role to prevent the blowout!	9:00 - 10:00 Keynote Talk Dave Raggett Emergence of the Sentient Web and the revolutionary impact of Cognitive AI
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 Andreas Harth From Internet of Things Platforms to Web of Things User Agents	10:30 - 12:00 Lecture Tobias Käfer Distributed Knowledge Graphs	10:30 - 12:00 Lecture Jomi Fred Hübner Multi-Agent Oriented Programming -- Programming Multi-Agent Systems Using JaCaMo	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 Simon Mayer The Web of Things and Hypermedia of Smart Devices	13:30 - 15:00 Lecture Tobias Käfer Distributed Knowledge Graphs	13:30 - 15:00 Lecture Jomi Fred Hübner Multi-Agent Oriented Programming -- Programming Multi-Agent Systems Using JaCaMo	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
  - Gitlab: https://gitlab.emse.fr/ai4industry/hackathon/-/wikis/home
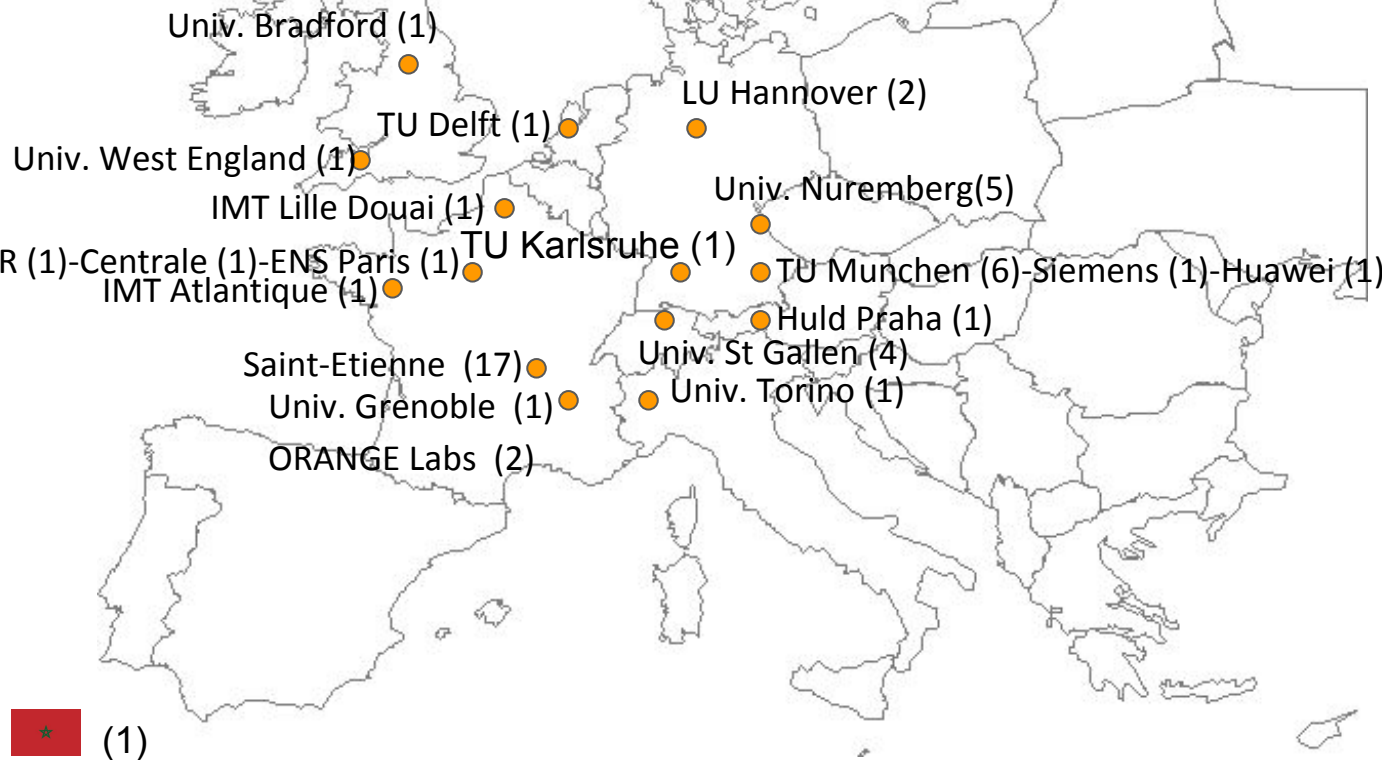
Mattermost Channels

- **#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

Univ. of Maryland, Baltimore county (1)

UFSC(2)
USP(1)

Airbus Defence and Space (4)

(1)

Univ. Bradford (1)

LU Hannover (2)

TU Delft (1)

Univ. West England (1)

Univ. Nuremberg(5)

IMT Lille Douai (1)

IFSTTAR (1)-Centrale (1)-ENS Paris (1)

TU Karlsruhe (1)

IMT Atlantique (1)

TU Munchen (6)-Siemens (1)-Huawei (1)

Huld Praha (1)

Univ. St Gallen (4)

Saint-Etienne (17)

Univ. Grenoble (1)

Univ. Torino (1)

ORANGE Labs (2)

Acknowledgments

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

- Sponsors:

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