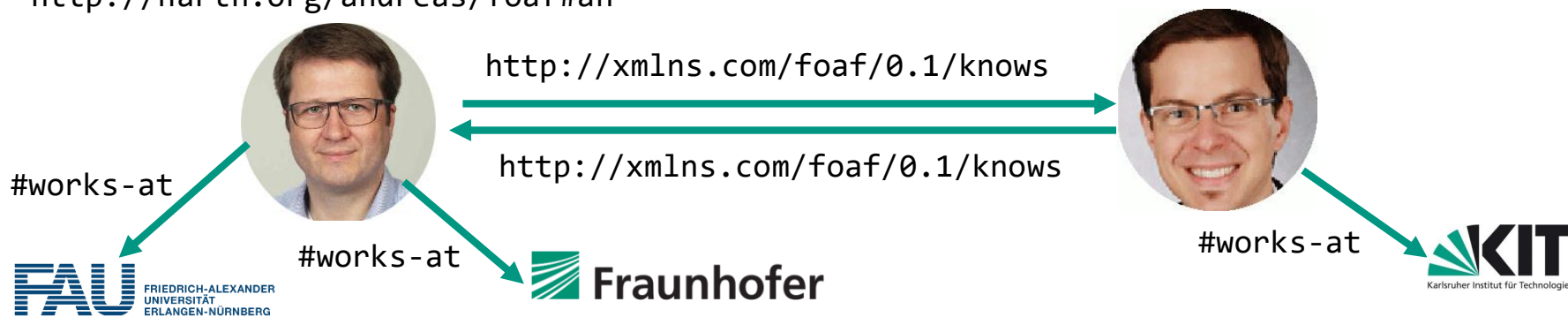


Distributed Knowledge Graphs for the Web of Things

Tobias Käfer (KIT) and Andreas Harth (FAU)

Tutorial @ 10th International Conference on the Internet of Things (IoT), 2020

<http://harth.org/andreas/foaf#ah>



Knowledge Graphs by Definition

... “a graph of data intended to accumulate and convey knowledge of the real world, whose nodes represent entities of interest and whose edges represent relations between these entities.” [1]

[1] Aidan Hogan, Eva Blomqvist, Michael Cochez, Claudia d'Amato, Gerard de Melo, Claudio Gutierrez, José Emilio Labra Gayo, Sabrina Kirrane, Sebastian Neumaier, Axel Polleres, Roberto Navigli, Axel-Cyrille Ngonga Ngomo, Sabbir M. Rashid, Anisa Rula, Lukas Schmelzeisen, Juan Sequeda, Steffen Staab, Antoine Zimmermann: “Knowledge Graphs”. <https://arxiv.org/abs/2003.02320> (2020)

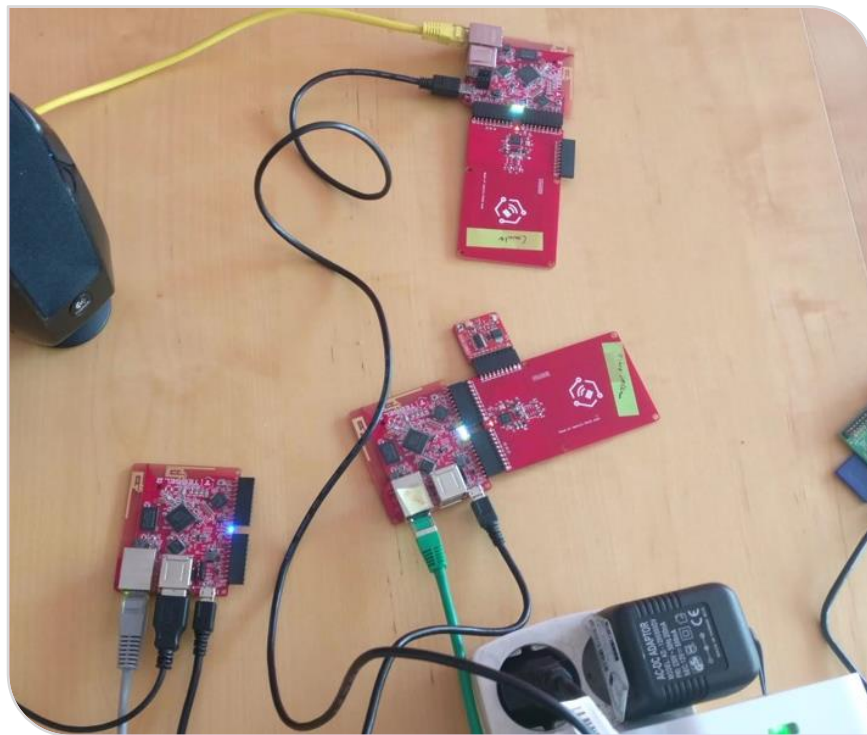
Distributed Knowledge Graphs

*Knowledge Graphs published in
a decentralised fashion, thus
forming a distributed system*

<https://www.cost.eu/actions/CA19134/>

Agenda

1. Linked Data
2. Read-Write Linked Data
3. Accessing Linked Data
4. Agents and the Cognitive Loop
5. Web of Things
6. IoT Platforms
7. Executing Agents
8. Workflows
9. Outlook: Link Following, Planning, Model Checking



Tools We Use (Not Required for the Tutorial)

- RDF Browser <https://addons.mozilla.org/en-US/firefox/addon/rdf-browser/>
 - curl <http://curl.haxx.se/>
 - rapper <http://librdf.org/>
 - roqet <http://librdf.org/>
- sudo apt-get install rasqal-utils raptor2-utils curl
- Linked Data-Fu <http://linked-data-fu.github.io/>

Acknowledgements

- Federal Ministry of Education and Research of Germany (Bundesministerium für Bildung und Forschung, BMBF), project MOSAIK (01IS18070A, 2019 – 2022), <https://mosaikprojekt.de/>