

Project title: EXC-2023 Internet of Production
Partner: PADS, IRT, IEHK, IOT, WZL-WM/IPT, IWM, GI, CATS, IAW, IBF, IKV, DBIS, Fraunhofer FIT, WZL-TF/IPT, ES, KBSG, TIM, Fraunhofer ILT LLt & NLD, ISF, SE, WZL-MQ/IPT, WZL-PS/IPT, COMSYS, HCIC, WIN, IGPM, IGMR, IMSE, VR, GDI, TOS/ILT, IMA/ZLW, HumTec, DAP, Access e.V., FIR, AICES
Duration: 01/2019 – 12/2025
Funding Agency: DFG – Deutsche Forschungsgemeinschaft (German Research Foundation)

Univ.-Prof.
Prof. h.c. (MGU)
Dr.-Ing. Dipl.-Wirt. Ing.
Thomas Gries
Director

Florian Brillowski
Scientific researcher
Hannah Dammers
Scientific researcher
Hannah Koch
Scientific researcher
Kai Müller
Scientific researcher
Leon Reinsch
Scientific researcher

Mission Statement

The Internet – in its meaning of a worldwide socio-technical network – has revolutionized accessibility of data and knowledge. This idea has been transferred to the physical world with the concept of the Internet of Things (IoT). A direct application of the IoT approach to production is currently not sufficiently feasible, as there are many more parameters, but much less available data compared to other big data application domains. Modern production is characterized by vast amounts of data. However, this data is neither easily accessible, interpretable, nor connected to gain knowledge. With the Internet of Production (IoP) we have the vision to enable a new level of cross-domain collaboration by providing semantically adequate and context-aware data from production, development and usage in real-time on an appropriate level of granularity. The central scientific approach is the introduction of Digital Shadows as purpose-driven, aggregated, multiperspective and persistent datasets. The Cluster of Excellence (CoE) will design and implement a conceptual reference infrastructure for the Internet of Production that enables the generation and application of Digital Shadows.

Approach

For the realization of the IoP, Aachen's highly renown researchers in production engineering, computer science, materials engineering and further necessary disciplines team-up to solve interdisciplinary challenges, like the integration of reduced production engineering models into datadriven machine learning for cross-domain knowledge generation and context-adaptive action. The Internet of Production will be leveraged by the production engineers in order to support a new way of more holistic working on – and with – sys-

Ref.: FB, HD, HK, KM, LR
29.07.2020

tems by developing and advancing engineering tools, methods and processes. Therefore, an integrated development for the entire production technology is required. Aachen – as the starting point for the Internet of Production – is characterized by an extraordinary range and outstanding reputation in production research as the results of the current CoE “Integrative Production Technology for High-Wage Countries” clearly illustrate. The RWTH Aachen Campus offers a unique infrastructural environment including a broad range of research institutes and industrial companies allowing for an integrative development and validation of the Internet of Production. The interdisciplinary collaboration is fostered by an environment that inter alia includes the support of early career researchers by a Research School.

Acknowledgement

Funded by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) under Germany’s Excellence Strategy – EXC-2023 Internet of Production – 390621612. The authors would like to thank the DFG for its support.

Contact

Florian Brillowski, M.Sc.

Scientific researcher Composite Production

Fon +49 (0) 241 80 27662

Hannah Dammers, M.Sc.

Scientific researcher Composite Production

Fon +49 (0) 241 80 22095

Hannah Koch, M.Sc.

Scientific researcher 4D & Prototyping

Fon +49 (0) 241 80 23474

Kai Müller, M.Sc.

Scientific researcher Value creation management

Fon +49 (0) 241 80 22081

Leon Reinsch, M.Sc.

Wissenschaftlicher Mitarbeiter Knitted Fabric

Fon +49 (0) 241 80 49101