

## FeatureCloud

**Project ID:** 826078

**Funded under:** [H2020-EU.3.1.5.1. - Improving health information and better use of health data](#)

### Privacy preserving federated machine learning and blockchaining for reduced cyber risks in a world of distributed healthcare

**From** 2019-01-01 **to** 2023-12-31, ongoing project

#### Project details

<b>Total cost:</b> EUR 4 646 000	<b>Topic(s):</b> <a href="#">SU-TDS-02-2018 - Toolkit for assessing and reducing cyber risks in hospitals and care centres to protect privacy/data/infrastructures</a>
<b>EU contribution:</b> EUR 4 646 000	<b>Call for proposal:</b> H2020-SC1-FA-DTS-2018-1 <a href="#">See other projects for this call</a>
<b>Coordinated in:</b> Germany	<b>Funding scheme:</b> RIA - Research and Innovation action

#### Objective

The digital revolution, in particular big data and artificial intelligence (AI), offer new opportunities to transform healthcare. However, it also harbors risks to the safety of sensitive clinical data stored in critical healthcare ICT infrastructure. In particular data exchange over the internet is perceived insurmountable posing a roadblock hampering big data based medical innovations. FeatureCloud's transformative security-by-design concept will minimize the cyber-crime potential and enable first secure cross-border collaborative data mining endeavors. FeatureCloud will be implemented into a software toolkit for substantially reducing cyber risks to healthcare infrastructure by employing the world-wide first privacy-by-architecture approach, which has two key characteristics: (1) no sensitive data is communicated through any communication channels, and (2) data is not stored in one central point of attack. Federated machine learning (for privacy-preserving data mining) integrated with blockchain technology (for immutability and management of patient rights) will safely apply next-generation AI technology for medical purposes. Importantly, patients will be given effective means of revoking previously given consent at any time. Our ground-breaking new cloud-AI infrastructure only exchanges learned model representations which are anonymous by default. Collectively, our highly interdisciplinary consortium from IT to medicine covers all aspects of the value chain: assessment of cyber risks, legal considerations and international policies, development of federated AI technology coupled to blockchaining, app store and user interface design, implementation as certifiable prognostic medical devices, evaluation and translation into clinical practice, commercial exploitation, as well as dissemination and patient trust maximization. FeatureCloud's goals are bold, necessary, achievable, and paving the way for a socially agreeable big data era of the Medicine 4.0 age.

## Coordinator

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TECHNISCHE UNIVERSITAET MUENCHEN  
Arcisstrasse 21  
80333 MUENCHEN  
Germany  
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Germany

**EU contribution:** EUR 1 350 000

**Activity type:** Higher or Secondary Education Establishments

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## Participants

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PHILIPPS UNIVERSITAET MARBURG  
BIEGENSTRASSE 10  
35037 MARBURG  
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Germany

**EU contribution:** EUR 500 000

**Activity type:** Higher or Secondary Education Establishments

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MEDIZINISCHE UNIVERSITAT GRAZ  
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8036 GRAZ  
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Austria

**EU contribution:** EUR 510 000

**Activity type:** Higher or Secondary Education Establishments

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SYDDANSK UNIVERSITET  
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Denmark

**EU contribution:** EUR 523 000

**Activity type:** Higher or Secondary Education Establishments

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**EU contribution:** EUR 500 000

**Activity type:** Research Organisations

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Netherlands

**EU contribution:** EUR 280 000

**Activity type:** Higher or Secondary Education Establishments

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Germany

**EU contribution:** EUR 355 000

**Activity type:** Private for-profit entities (excluding Higher or Secondary Education Establishments)

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RESEARCH INSTITUTE AG & CO KG  
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**EU contribution:** EUR 175 000

**Activity type:** Private for-profit entities (excluding Higher or Secondary Education Establishments)

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**EU contribution:** EUR 453 000

**Activity type:** Private for-profit entities (excluding Higher or Secondary Education Establishments)

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