

Towards Edge-native Artificial Intelligence



FLAGSHIP
UNIVERSITY
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FC Finnish
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Intelligence AI

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Edge-native Artificial Intelligence

Real-time applications



Smarter networking



Security and privacy



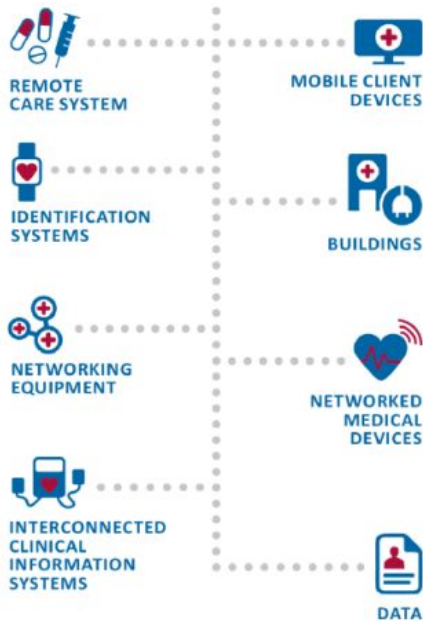
Application Areas

- City Scale Sensing
- Urban Computing
- Autonomous Vehicles

Environment Sensing



Healthcare Applications and Smart Hospitals

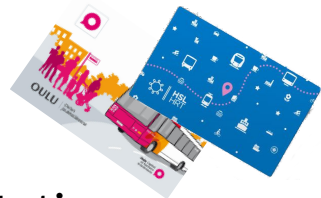
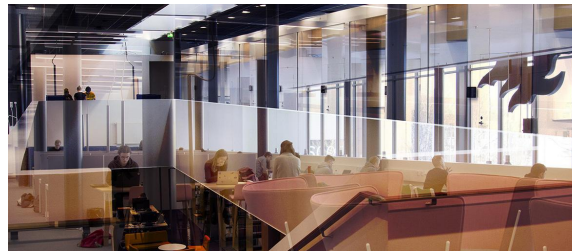


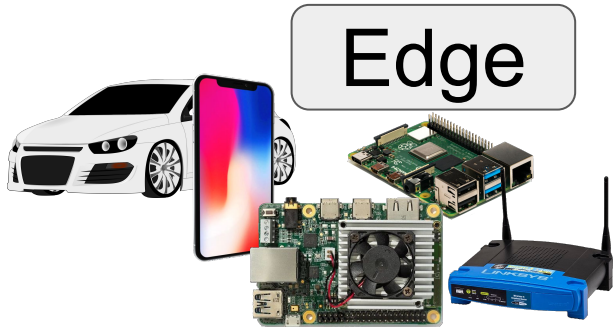
Transportation

Homes



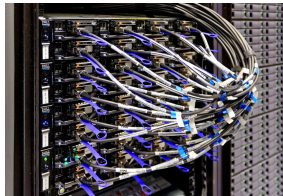
Offices





Edge

Fog



Cloud



Computational Capacity
(per node)



Distance & Network Latency
(from user device)



Storage capacity
(per node at a given location)



Throughput
(to-from user device)



Less More

Why AI on the edge?

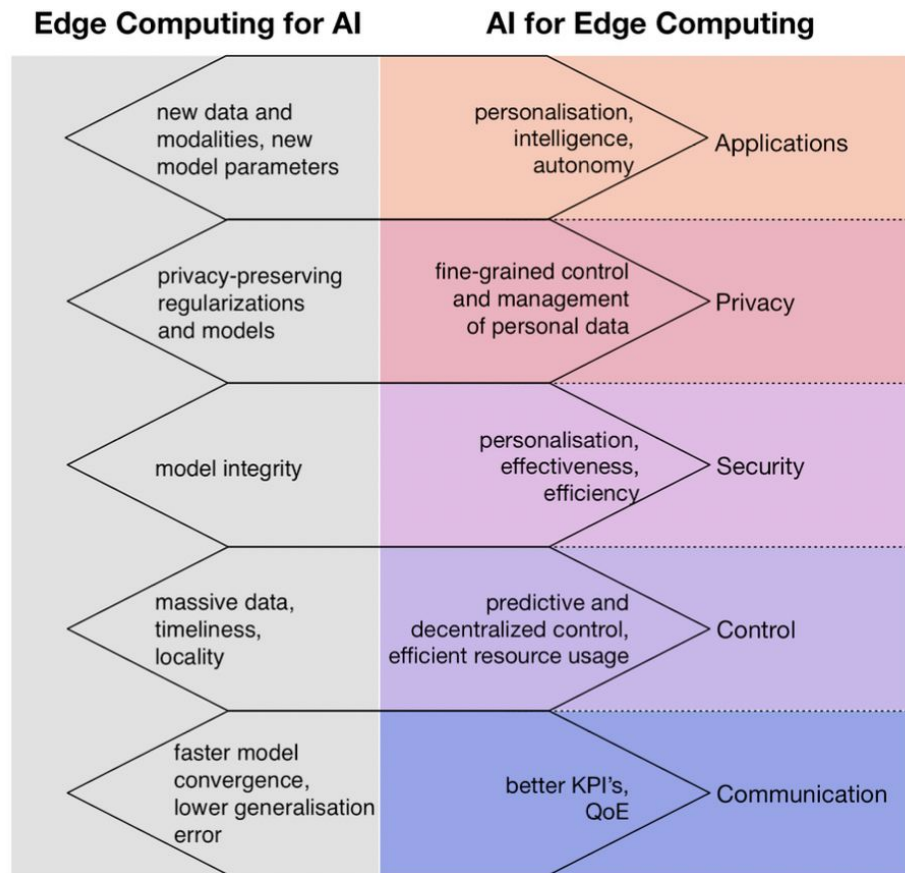
- **Real-time applications** -> local computing provides lower latency
- **Smarter edge** -> AI-driven decision making for networking
- **Security and privacy** -> user-control over computing environment
- Opens avenues for novel applications



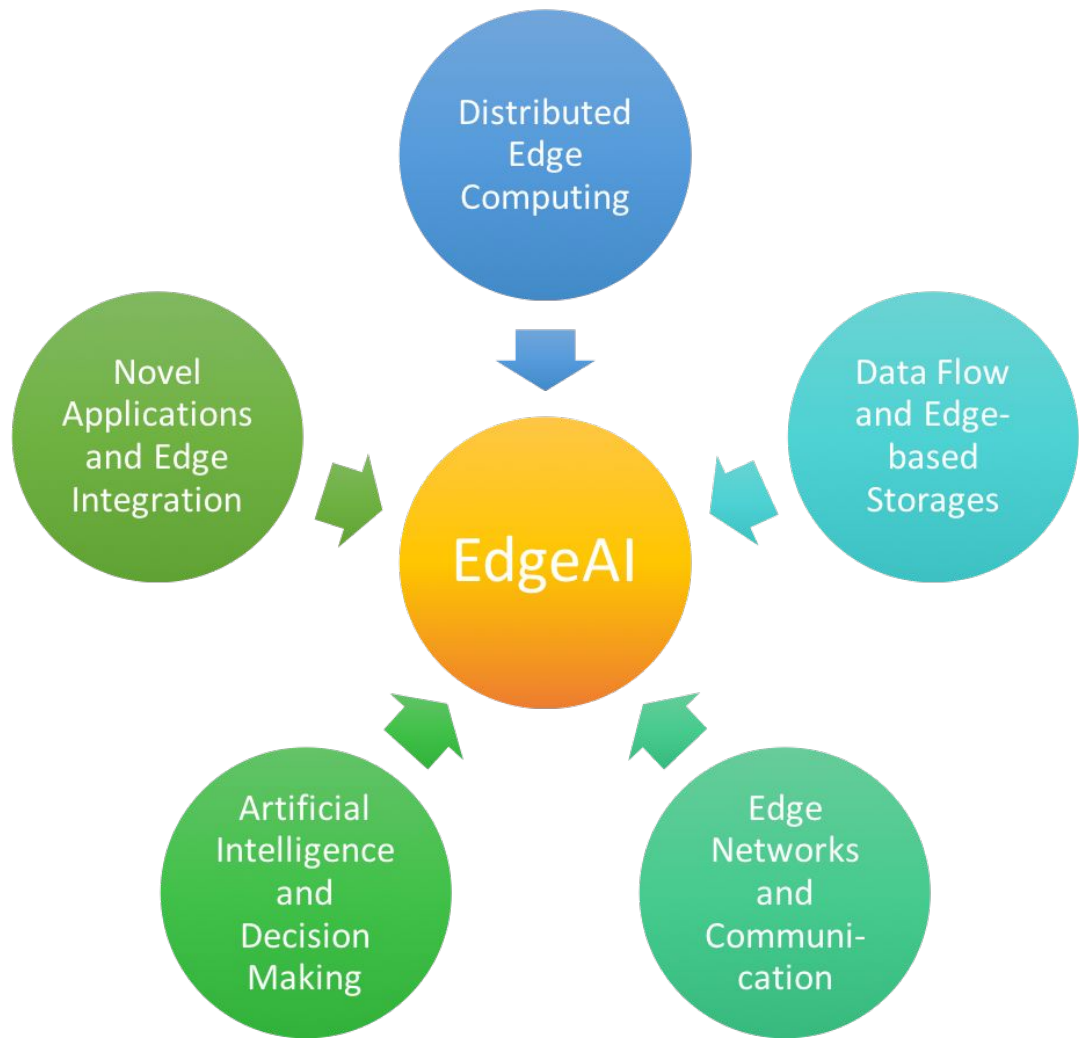
AI for Edge & Edge for AI

Real time decision making on

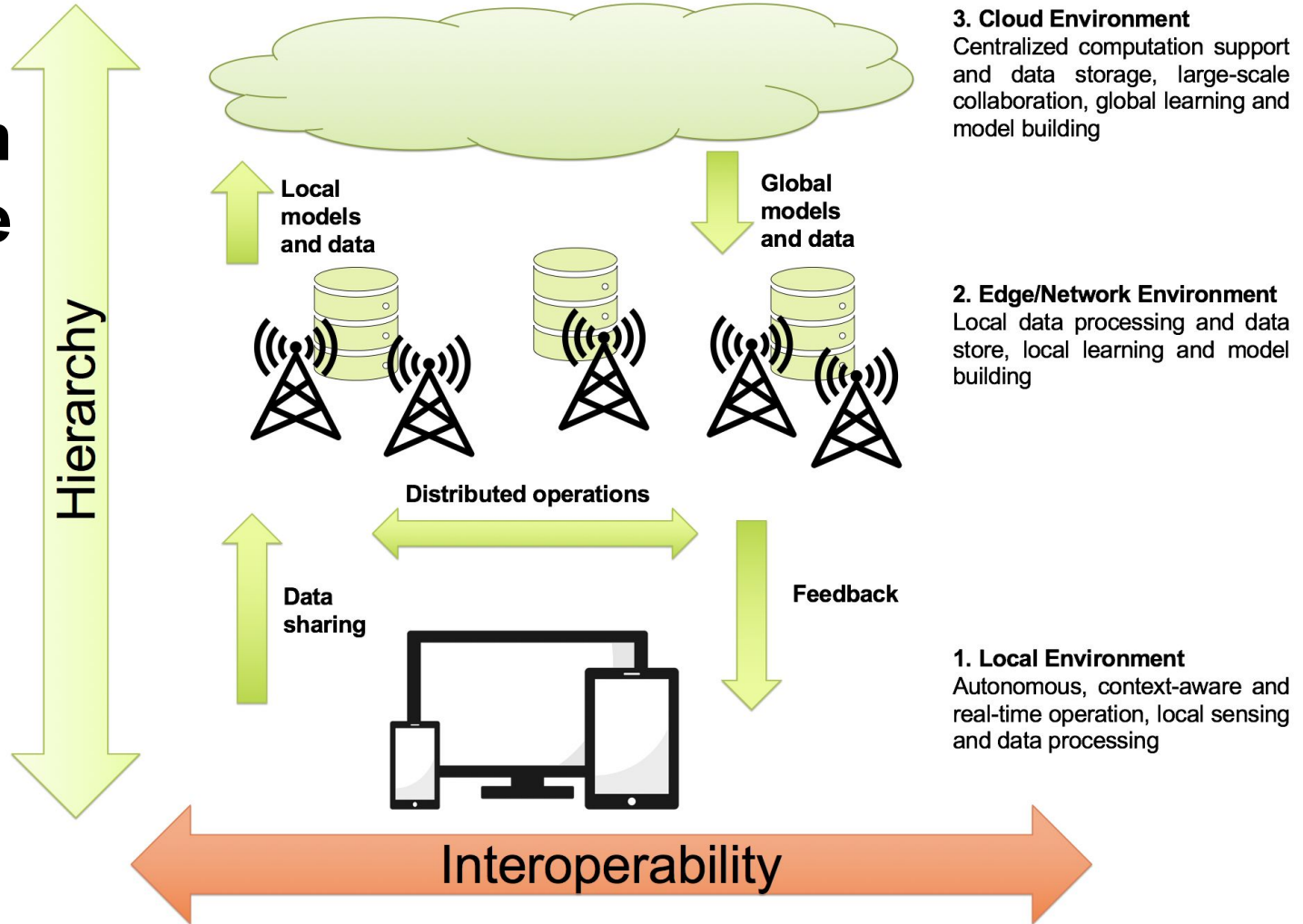
1. where to compute,
2. when to compute, and
3. what to compute.



Enablers for Distributed AI in the Edge



The System Perspective

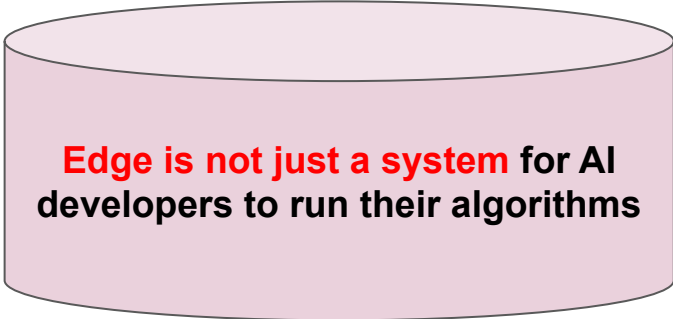


Main Challenges

- **Real-time data** analytics over edge environments
- Dynamic and intelligent **task distribution** across the participating devices
- **On-demand network** re-modelling and topologies



AI is not just a toolbox for edge developers to implement



Edge is not just a system for AI developers to run their algorithms

Future Directions

EdgeAI Special Interest Group (SIG) between 6G and FCAI Flagships

- The first workshop in the beginning of February 2020
- Special tracks in 6G Summit in March 2020 (submission deadline 20.12.!!)

Edge Computing

Artificial Intelligence

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