

Cybercom Machinebook

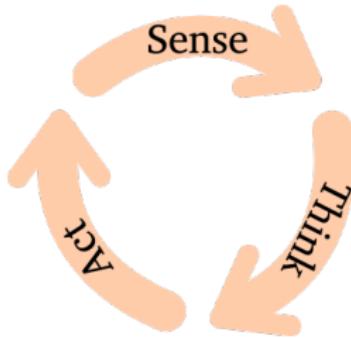
Social Collaboration between People and Machines based on Conversational Paradigm, Machine Learning and Industrial Internet of Things

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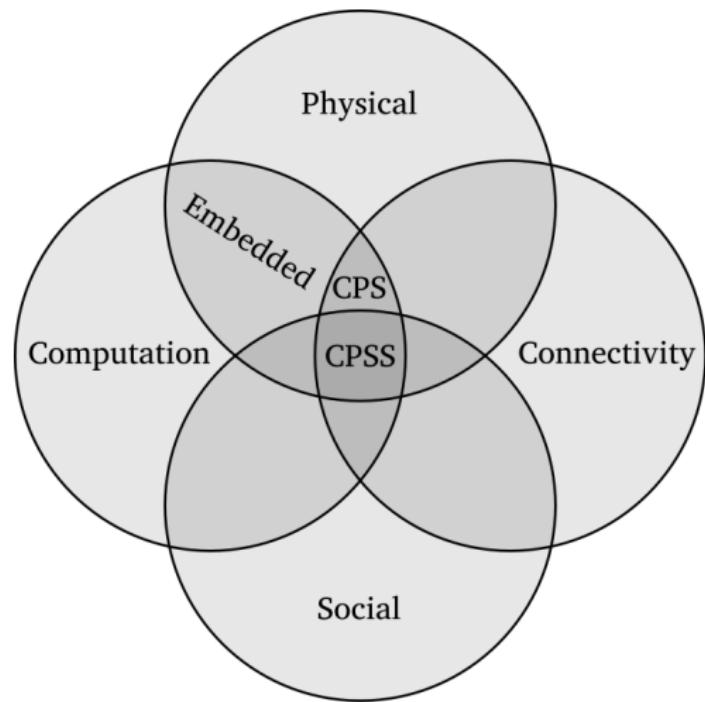


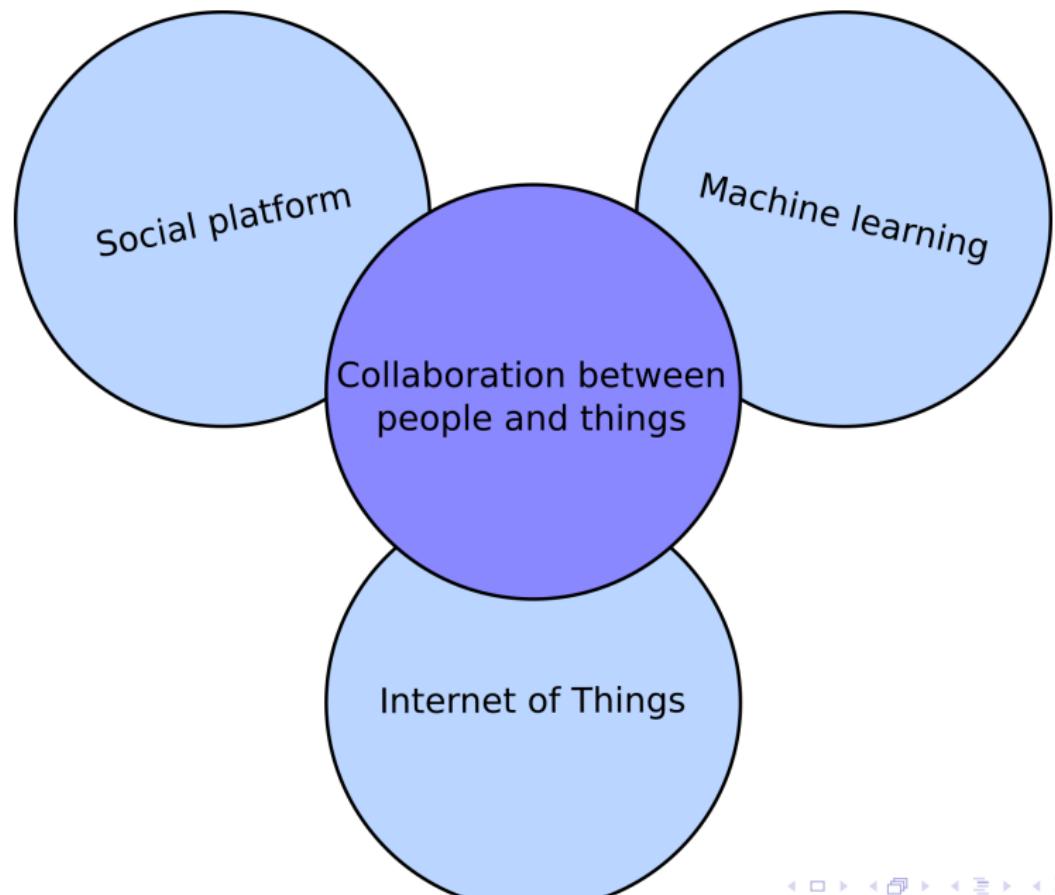
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- A loose definition: *Control of networked systems.*
- Cybernetics is an *interdisciplinary* study regarding complex, dynamic, and connected systems, their modelling and control.
- It includes everything from control theory to software design patterns to ergonomics to political modelling to biological evolution.
- A lack of a common language between the fields, while the applications span them, is a constant theme.
- The cybernetic feedback loop of Sense \Rightarrow Think \Rightarrow Act is in a central role in cybernetics. This loop has many varieties.



- Adding a physical element to computation forms the field of embedded systems.
 - For example: A standalone industrial robot
- Adding connectivity to embedded systems forms Cyber-Physical Systems (CPS).
 - For example: Smart electric grid
- Adding the social dimension to Cyber-Physical Systems forms Cyber-Physical Social Systems (CPSS).
 - Human-machine collaboration within a business process
 - For example: Machinebook
- Cyber manufacturing is formed naturally in a 5C architecture:
 - ① *Connection* of devices in a network
 - ② *Conversion* of sensor data into information like condition
 - ③ *Cyber*: Combine multiple connected embedded systems into a whole
 - ④ *Cognition*: Visualize the whole and relate the information to business domain
 - ⑤ *Configure* the overall business in a preventive and adaptive fashion

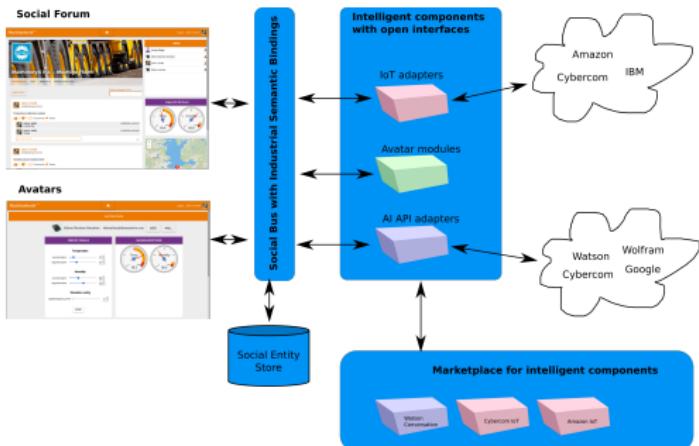




- Machinebook is a concept which projects intelligent IoT machines onto a social collaboration platform as avatars.
- Conversational interface is an emerging paradigm in consumer products and services, not yet taken into use in the industrial context.
- Social platform enables deployment of effective machine intelligence technologies. Mining conversations has standard tools, and can be more convenient for many use cases than special queries to structured databases. Conversational capabilities can be incrementally developed and deployed without designing new user interfaces each time. Integrating intelligent capabilities behind a conversational avatar can be more natural in some cases than creating dashboards.
- Invisible, separate IoT logs become visible, shared **stories** and people and machines are on the same page on what is happening. Social interactions bring silent knowledge and experience explicit.



- A social avatar is like a **working dog**, not a hammer. Social avatars form a **team**, not a massive bag of separate tools. The social avatars are taught like colleagues, instead of programming them as asocial automation systems.
- Avatars represent the machine provider, the site management and the machine itself. They provide a channel for user guides, maintenance assistance, after market sales, task assistance, and even motivation and customer company values.
- Marketplace for components allows progressive development and deployment of incremental intelligent functionality.



- Machinebook has generated intense interest in media and in business circles both in Finland and internationally.
- Tampereella on kehitetty koneille omaa "Facebookia" – Aamulehti
- Cybercom loi ihmisten ja koneiden somen – Kauppalehti
- IT: "MACHINEBOOK" BLIR MASKINERNAS SOCIALA NÄTVERK – RedEye.se
- The latest blog post about Machinebook

