

# K. TOYODA LAB.



## Next-generation generic spatial 3D description platform(Common Ground)Development

Development of Human and Social Systems

Common Ground Studies

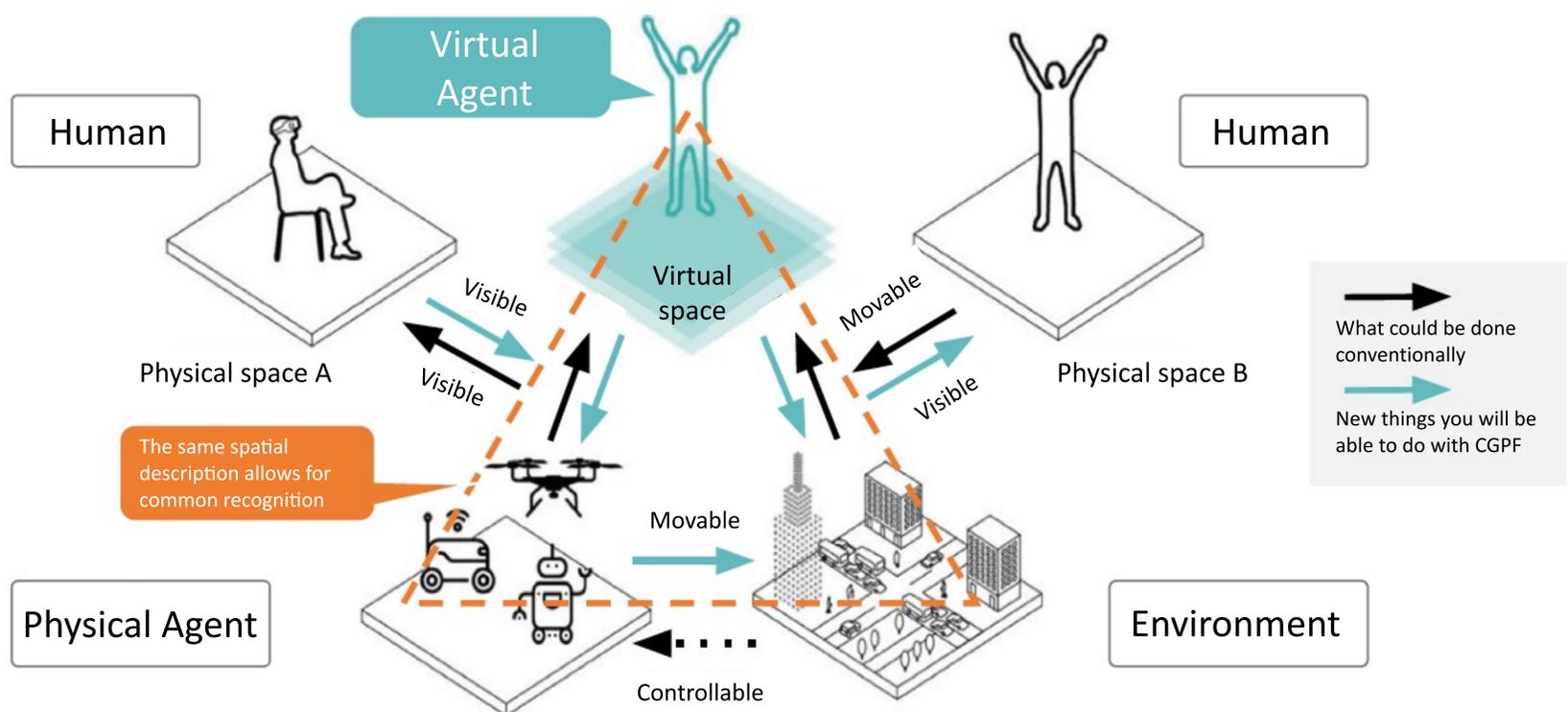
Department of Architecture, Graduate School of Engineering

<https://commonground.iis.u-tokyo.ac.jp/>

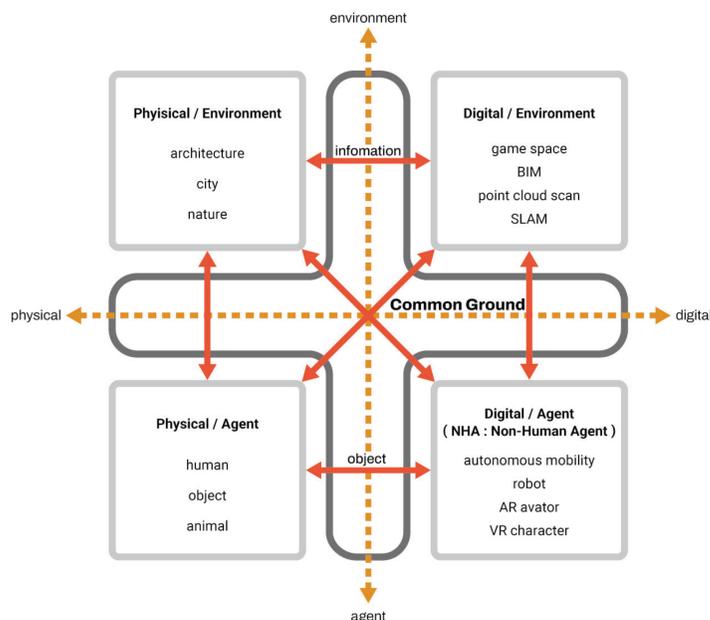
### Common Ground where real space and information space overlap

The Common Ground Platform (CGPF) provides a multimodal, bi-directional collaboration environment between virtual and physical spaces mediated by the environment by linking the geometry description environment with IoT networks such as sensors. This will provide a dynamic, immersive spatial description, unlike existing static digital spatial descriptions. Furthermore, by deploying shareable spatial descriptions and sensors on the environment side, it can assist edge devices such as tablets and VR goggles with the spatial awareness and description required of them, thereby distributing the load.

#### < Common Ground in the architectural and urban area >



#### < Relationship between real space, urban OS, and common ground >



If we graphically represent the vertical axis as "environment" (container/box) and "agent" (=autonomous subject with unique perspective), and the horizontal axis as the spectrum axis of "physical" and "digital," we can understand that the combination of mutual recognition between individual domains alone will increase exponentially compared to the conventional world closed to the physical. The common ground is a set of pre-defined areas that can be used as a basis for the development of a new world. Common Ground is oriented toward the construction of a general-purpose environment that can be immediately connected to other domains from anywhere in the four quadrants by "leaving" space, form, and their basic attribute descriptions in a form that can be recognized by any domain in advance.

