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o   Title: Towards Operating Systems for the Real World

o   Abstract:

Information technologies dramatically changed our daily life. Now, every
day, we use the Google search engine to find everything we like to know.
Also, when we travel to somewhere, we use Google Map to navigate us toward
the destination place. Software is becoming a key element for adding values
to everything. However, we currently do not know what are fundamental high
level platforms for adding values in our daily life services.

In this tutorial, after showing some backgrounds, we like to present
three research topics, which we are recently working on, and aim to
seek future fundamental high level platforms for adding values for
software-based daily like services. The
first research topic is called "alternate reality experience" that aims
to guide people's attitude and behavior, which will become future user
interface component in the real world operating system. The second research
topic is called "sharing everything" that aims sharing and protecting any
physical resources in the real world, where sharing and protecting are
essential functions in operating systems. The third research topic is
called "physical embodiments" that aims to offer novel I/O device
managements to interface to the real world, where physical actuation
is an essential function that operating systems communicate with the
real world.

The above approaches will allow us to consider what kind of operating
systems we can investigate for developing future advanced services.
Finally, we like to show some future research agenda in this research.

o   Keywords: Ubiquitous Computing, World Models, Digital Platforms
for xR, Tangible Interaction

o Outline

1. Vision: Redefining Society through Digital Technologies
2. Operating Systems for the Real World
3. Alternate Reality Experience
4. Sharing Everything
5. Physical Embodiments

6. Research Opportunities

o   Target audience: Intermediate

o   Expected Duration: 60mins

o   Teaching mode: face-to-face (If I cannot attend the conference due to the pandemic, I'll switch to virtual or withdraw my tutorial.)

o   Material: Slides