

Okatani-Suganuma Lab.

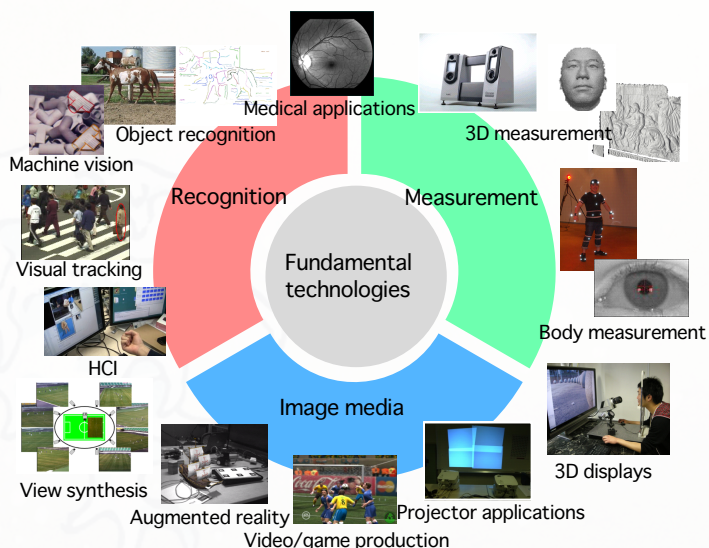
Feel free to send us an email for more details.

Robotics Course

Graduate School of Information Sciences, Department of System Information Sciences

Computer vision for AI

We study computer vision for artificial intelligence. Toward the ultimate goal of developing a computer system that can see the world as humans do, we are studying methods for understanding images and those for obtaining 3D information about a scene from its images. We are currently conducting a wide range of research projects, e.g., from development of theory of deep learning to autonomous flight of drones for inspecting bridges. At present, Prof. Okatani concurrently serves as a team leader at RIKEN center for AIP, a major center of AI research in Japan.



AI that can understand images

Example 1: Boy playing tennis

Dialog history:
H₀: The young boy is playing tennis at the court
H₁: Is the young boy a toddler? No

Q2: What color is his hair?
(It's black)
Q3: Is he wearing shorts?
(Yes)

What color is his hair?
his hair
Q: What color is his hair?
GT answer: It's black
Prediction: Black

Example 2: Elephant in the jungle

Dialog history:
H₀: An elephant walks through the greenery of the jungle
H₁: Is there people? No
H₂: Is the elephant an adult? Yes

Q3: Can you see its tusks?
(Yes)
Q4: Does he have a saddle?
(No)

Can you see its tusks?
its tusks
Q: Can you see its tusks?
GT answer: Yes
Prediction: Yes

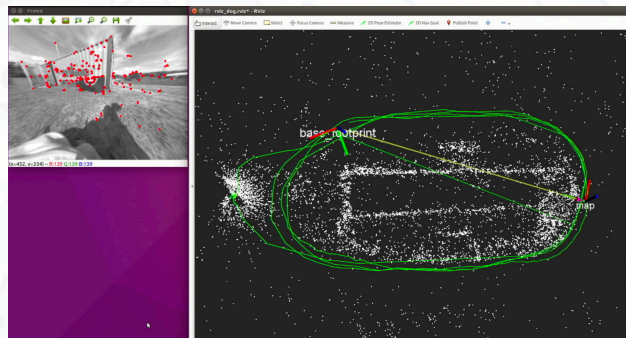
We are studying an AI that can interact with people using language about the content of an image. This is the research of AI closest to human intelligence and will open up the frontiers of deep learning.

Analyzing fashion by computer



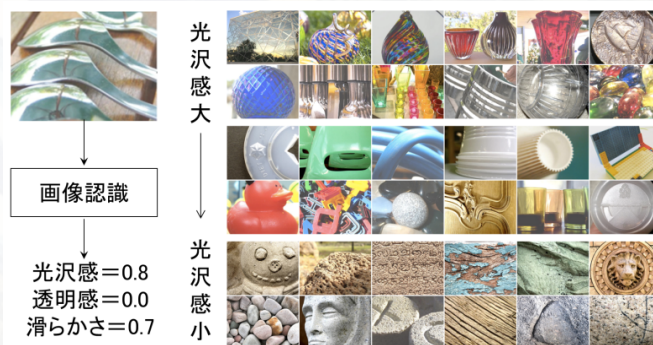
We are studying an AI that can learn to judge whether a given combination of fashion items is good or bad.

Vision for mobile robots



We are developing vision for mobile robots; the above shows some results of estimation of 3D structure of a scene and the motion of a robot from the camera mounted on it.

Recognizing Shitsukan of objects



Most of what we perceive with our eyes cannot be expressed in words. We study how to recognize such things with a machine.