

Researcher

# Takushi Kawamorita, PhD

Kitasato University, School of Allied Health Sciences,  
Department of Rehabilitation, Orthoptics and Visual  
Science Course, Associate Professor



## Profile

Dr. Kawamorita specializes in ophthalmological optics and visual design. Research activities include the effect of aging on vision, and educational activity related to vision and traffic safety. His vision statement is "to create a world which one can see clearly". Activities include a speech at the "Cabinet Office Forum for Traffic Safety 2015", and supervising the DVD content "Preventing accidents for elderly pedestrians: An approach from Vision" by the Shizuoka Prefectural Police Headquarters. Dr. Kawamorita is a standing director of the Japanese Society of Ophthalmological Optics and vice president of the International Refractive Society.

## Message

I study the conditions (brightness, font size, color, etc.) that make it easier to see displays in-car navigation systems and automated vehicles. Also, I am researching the relationship between changes in visual quality due to aging and its implication for traffic safety. I am actively engaged in social activities to create a society in which people can see more clearly.

Traffic Safety Future Creation Lab

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# Hiding in Plain Sight?

Research on the measurement of functional field of view and traffic safety

From the Research Communication #7

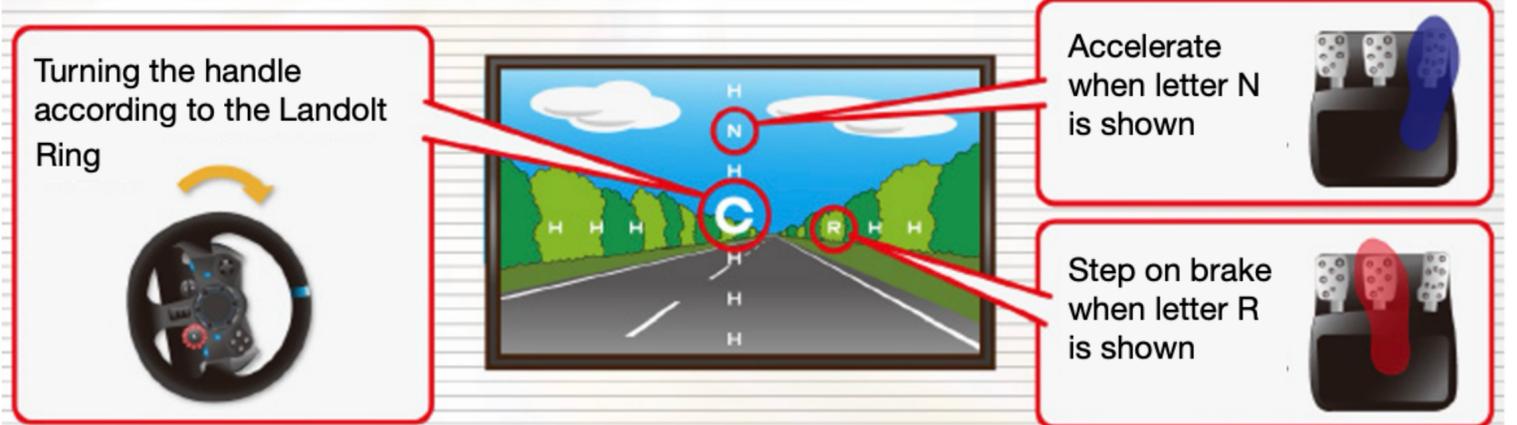
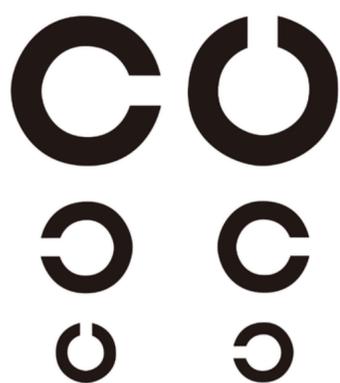
## What is functional field of view?

Functional field of view is an area in which one can see while performing other tasks. It is narrower than the perceived field of vision and associated with traffic accidents because of overlooking hazards outside this area.



## Functional field of view measurement system

Teams at Kitasato University together with Nissan Motor Co., Ltd. and PRIDIST Co., Ltd. developed a measurement system for functional field of view. By controlling attention through videos, eye and motor movements, accurate measurement of functional field of view close to actual driving environment was made possible.



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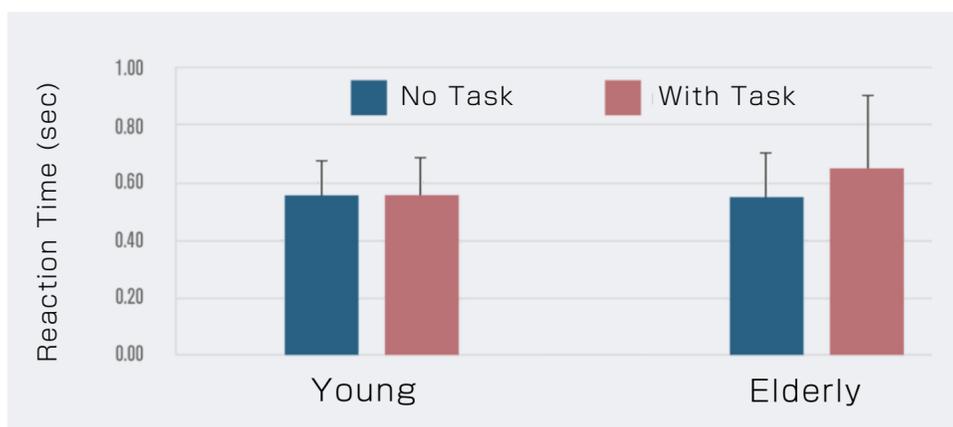
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## Experiments using the system

Subjects are asked to concentrate on the center of the image and perform simple tasks (1) button and brake operation in accordance with the screen and (2) complex tasks including steering the wheel and gas pedal operation to measure reaction time to danger and stopping distance.

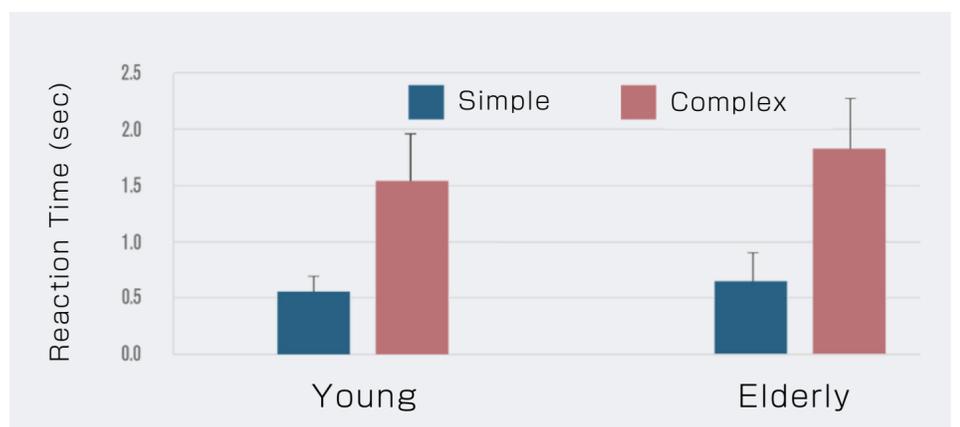
### Result ①

We found that even for simple tasks, the reaction time of the elderly was slower when focused on the center.



### Result ②

In complex tasks, reaction time for both the young and elderly became slower. This was more pronounced among elders.



April at 8pm: Raining Accident at a pedestrian crossing



April at 10pm: Fair Accident outside of pedestrian crossing

### POINT



When you concentrate on something, your ability to see the surroundings is impaired resulting in longer reaction time. Since our brain is not able to recognize everything within the field of view, it is important to be aware that **seeing is not the same as recognizing** and being mindful of safety.

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Report by : Takushi Kawamorita, PhD

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