News Release

RTRI's Researcher Receives Young Scientist Award

Dr. Kodai Matsuoka, Senior Researcher of RTRI, received the Young Scientist Award* for 2024 from the Minister of Education, Culture, Sports, Science and Technology. On April 17, Dr. Matsuoka was awarded the commendation certificate at the hall of the Ministry.

Award winner:

Dr. Kodai Matsuoka

Senior Researcher, Data Analytics Lab, Information and Communication Technology Division

The award-winning research:

Wayside and onboard railway bridge monitoring

[Outline of the research]

Some concrete bridges of high-speed railways, that were built during Japan's rapid economic growth period, crack and generate excessive vibration when trains pass over them. To monitor such phenomena, a vast number of bridges had to be measured from the ground, one bridge at a time, for the deflection (vertical irregularity) that occurred when the train passed over bridges.

Dr. Matsuoka elucidated the vibration components that are unique to resonant bridge structures and are liable to affect the track irregularity and vehicle body acceleration measured by running vehicles. Based on the results, he has developed methods to extract features of resonant bridges from data measured by the leading and tail vehicles.

The results of his research have been used in multiple high-speed railway lines as a railway bridge monitoring technique to save a significant amount of labor required for ground measurement and to maintain railway equipment used on bridges. This work is expected to contribute to the realization of efficient maintenance of railway equipment.

[Comment by Dr. Matsuoka]

I am greatly honored to receive this prestigious award. I would like to express my sincere thanks to many people including my supervisors and colleagues. I owe a great deal in achieving the results of this research to the kind support and precious advice from all of them, and to the wonderful research environment at RTRI.

Due to the declining working-age population in Japan, it is necessary to promote laborsaving by replacing inspection and evaluation that have been performed by railway engineers so far with those conducted by digital techniques such as sensors and onboard measurement. This research has provided a new technique for monitoring vibration

News Release



components of railway bridges. I believe this research achievement will further drive the development of railways through streamlining maintenance and management of railway bridges.

Keeping in mind this honorable, encouraging moment, I would like to continue my research to contribute to enhancing the value of railways and creating a happier society.

* Young Scientist Award by the Minister of Education, Culture, Sports, Science and Technology

This award is given to young researchers under the age of 40 (Under 42 years of age if there is a period of time during which the researcher is unable to concentrate on the research due to childbirth or childcare) who have achieved distinguished research results with outstanding research abilities by conducting research into newly emerging issues or from unique and original perspectives.



Dr. Kodai Matsuoka