

Tohoku University Improves Learning Outcomes in Robotics System Engineering Course

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Associate professor Shogo Arai at Tohoku University uses MATLAB® to teach a graduate-level robotic systems engineering course that builds on knowledge from undergraduate courses. The course aims to provide students with the knowledge and practical skills for 3D vision processing for recognizing objects and grasping objects with motion planning for a robot arm system.

The professor introduced MATLAB for stereo vision, point cloud processing, and motion planning. Students constructed the robot arm environment and were able to visualize and verify how their path planning algorithms behave on the built system.

By implementing algorithms themselves, students acquired practical skills that cannot be obtained in presentation-style classes. In addition, the professor significantly reduced the time to prepare for the class by using the example programs and dataset provided in Robotics System Toolbox™.

Advantages of using MATLAB:

- Advanced robotics applications can be built in a single development environment.
- Provided code examples and dataset help professor create course materials and enable students to easily build complex robotics systems.
- Intuitive programming allows students to understand concepts more easily.

“ MATLAB made it **easy to build the robot system environment** necessary for the class. Through implementation of algorithms, the students gained **practical skills** that could not be gained through classroom learning alone. ”

