

Keio University Uses MATLAB in Advanced Robotics Course for Undergraduate Students

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Associate Professor Ishigami at Keio University uses MATLAB® to teach a robotics mechatronics course for 110 undergraduate students, covering a wide range of robotics fields such as motors, sensors, vision, mapping, navigation, and odometry. He found that MATLAB is effective to teach basic and advanced topics within the limited lecture time and to interest undergraduates unfamiliar with programming.

Dr. Ishigami conducted simulations using functions in various toolboxes to help students understand robotics algorithms. For example, he demonstrated the complex concept of path planning using Robotics System Toolbox™. Because it's important to relate physical phenomena with principles to gain students' interest, visualizing lidar point cloud data enabled students to understand sensor structure and measurement principles. Sharing the code with students after the class let them further study independently and deepen their understanding.

Advantages of using MATLAB:

- Cover basic to advanced robotics topics using MATLAB and toolboxes
- Visualize measurement data and enhance students' interest and understanding
- Accelerate self-learning through advanced demonstrations and sharing of code

“ MATLAB made it easy to perform robotics simulations and analysis, allowing me to demonstrate advanced topics within limited time and help students deepen their understanding.

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