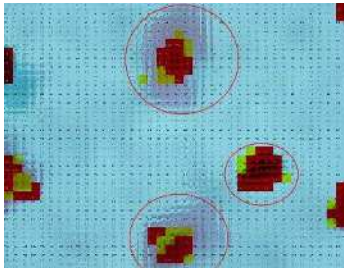


Name	SHIMOMOTO Yoichi	Job Title	Associate Professor	Area of Expertise	Control Engineering / Machine Learning
1. Main Research Topics					
① Control theory and its applications					
Control systems are generally designed based on a "mathematical model of the controlled object" that mathematically describes the characteristics of the controlled object, but there are always unpredictable differences between the characteristics of the actual object and the characteristics shown by the mathematical model. We regard such differences as uncertainty in the characteristics of the controlled object, and are conducting research into control system design methods that take this uncertainty into account.					
② Research on the use of machine learning in oral cytology diagnosis					
Oral cells are key to treating oral cancer. However, there is a shortage of pathologists who can perform this treatment, and it is difficult to increase the number of skilled pathologists at an early stage. Therefore, in this research, we are using machine learning, which is increasingly being used in image diagnosis and disease diagnosis, to research the construction of an image classifier that can classify oral cancer using oral cytology.					
					
③ Research on the use of machine learning in buffing					
In this research, we aim to provide a system that can supplement training data on metal surface defects similar to the Buff-Polishing Defect Dataset (BDD) using image generation AI before the BDD is completed. Ultimately, we aim to present a method for generating large-scale datasets to support defect detection similar to BDD, and to efficiently support the discrimination and verification of BDD.					
					
2. Keywords					
Control Engineering, Control Theory, Mathematical Science, Machine Learning, Diagnostic Imaging					
3. Remarks and Websites					
researchmap: https://researchmap.jp/read0072742					
Laboratory: http://www.mech.nagasaki-u.ac.jp/index.htm					