

Architecture and Urban Design Laboratory

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Laboratory URL	http://mlab.ace.tut.ac.jp/
Key words	Design technology, design robotics, digital fabrication, town development, management

The Architecture and Urban Design Laboratory conducts a wide variety of research relating to building design and practical design activities.

Theme 1 ► Theory in architectural design

We are conducting research into theories of design relating to what kind of philosophies is behind the background to an architect's designs and what kind of processes are used in designing. By reflecting the results of this research into actual design, we aim for the creation of comfortable and safe architectural environments.



A robot arm

Theme 2 ► Design technology & robotics

We are conducting research into application of CAD/CAM technology to architectural design, including 3D printers, laser cutters and CNC (Computer Numerical Control) devices by using a leading-edge architectural manufacturing lab, from such perspectives as; 1) the creation of complex architectural models that would have been impossible with existing design methods; 2) development of methods for gaining a practical understanding and investigating spaces at the planning stages using physical models; (3) new architectural manufacturing that involved collaboration with other industries, starting with manufacturers. We have introduced industrial robots ahead of other domestic architecture universities, and are working alongside overseas universities, including Harvard University, while taking progressive approach to realize a revolution in architectural design.



CloudLeft: Cast model project

Theme 3 ► Townscape improvement and project management

We are performing townscape improvement through the repair of the shopping street façade in Toyokawa Inari Monzen, Aichi. As a project to improve the townscape in Toyokawa City, we are working alongside local residents and have already renovated a total of 11 stores. We are also undertaking the creation of communion bases in order to promote proactive village development in hilly and mountainous areas. We are also conducting research into what can be considered the key to success in complex modern construction projects; the abilities and knowledge to balance and coordinate a large number of participants and items, while coming into contact with people from across the region and a variety of different organizations rather than just the client and the architect.



The townscape improvement in Toyokawa Inari Monzen