

Division of Environmental Studies

Department of International Studies

Laboratory	Faculty	Introduction of research activities and laboratory	Key words	Projects or activities summer program students can participate
Honda Research Group / Laboratory	Prof. Riki HONDA	<p>Our society is exposed to various types of risks including natural disasters. Preparation for such risks is essential, but no countermeasure can provide perfect protection against severe disasters. In the presence of various threats such as climate change, huge earthquakes and tsunamis, society needs to be endowed with capability of adaptation and resilience. In our group, mechanism of collective behavior observed in the society coping with the situation with severe uncertainty is discussed from the viewpoints of social networks, game theory, adaptive systems theory, etc. Innovative mathematical approach for uncertainty management, such as financial problems and stock management is also in our scope. Development and management of infrastructure systems, advanced design methods, asset management and international technology transfer are also of our interest.</p>	<p>1) Social Resilience 2) Network dynamics 3) Uncertainty quantification 4) Infrastructure asset management</p>	<p>Candidate of topics are as follow. Other topics are also possible within the scope of our research group (see Section 3.)</p> <p>(1) Infrastructure risk/maintenance management Long term policy is essential for the asset management of public infrastructure. Due to various uncertain factors such as deteriorating ratio and environmental conditions, . Change in management plan itself is also uncertainty factor. It is a valuable and difficult issue to develop a maintenance policy that should be efficient over the long term under uncertain condition. The mission of the intern will be survey and numerical simulation of the state of infrastructures and maintenance policy.</p> <p>(2) Dynamics of Collective Behavior against risk It is essential for the recovery from the disaster, that concerned people have affirmative attitude. In order to discuss how such attitude is developed and what kind of factors affect, various cases are discussed from various viewpoints such as social networks. The mission of the intern will be analysis and numerical simulation of social networks, or the scenario analysis of successful cases.</p>