



European Research Day 2017

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T07 - Mr. Ryuugo MOCHIZUKI, PhD Candidate, Japanese Kyushu Institute of Technology, Grad. Sch. of Life Science and Systems Engineering

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My research project:

I am involved in creating an automatic, intelligent navigation system for Automated Guided Vehicles (AGVs). The system is based on image sensors. Currently, AGVs are used in large facilities such as in factories, but their guidance is mainly performed through magnetic tapes, which renders changing layouts painful for users: get rid of the magnetic tape guidance would be desirable.

I am trying to introduce intelligence in my system to allow it to select important visual features in its camera images in order to discriminate locations within the working environment. Saliency of image features is a key for recognising locations. Nowadays, cloud robotics are in fashion. If one uses cloud services to improve recognition capacity, servers will be required to analyse all sensor data from the AGVs, which will lead to an explosion of network traffic. My work focuses on building in-situ recognition ability for AGVs.

My career path:

Until 2015, I worked on the topic of (digital) image stitching applied to cleaning robots for ships. I also served as a Teaching Assistant in robotics, where I gave courses on classic control theory and image processing.

As I expect to obtain my PhD by Summer 2018, I am planning to work for academia in France. One of my plans is creating assistance systems for vision impaired or Alzheimer patients. Indoors for example, GPS cannot be helpful because its waves have limited reach in buildings. Scene recognition systems will be necessary. Healthy humans can recognise their location easily through their capacity to distinguish important features to discriminate objects, or understand relationships between objects. Such scene abstractions can be processed by saliency detection artificially.

My relation to Europe:

I have no ongoing cooperation projects with Europe for now. but I have had an experience of studying abroad, at LaBRI (Informatics lab., University of Bordeaux, France) for fifty days from December in 2015 with support from my home Graduate School. I now still work on a similar topic and therefore sometimes report my research progress to them. Currently I have a plan to go back to France for job hunting to become a researcher. I am therefore looking for information on available funding to achieve this objective.

Overall, Europe is attractive to me, because it has a profound history is profound (as well as Japan); but also because many companies in my domain are implanted there. I also want to take advantage of my future stay to communicate with many researchers from various countries. The opportunity of learning from various cultures and languages will be precious to me.