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## 研修概要 Research outline

I visited PAMELA (Pedestrian Accessibility and Movement Environment Laboratory) of the University College London (UCL). This is a state of the art indoor laboratory space that is specially designed for conducting experiments with human subjects. I spent approximately 2 weeks in London. Detailed schedule of my visit was as follows.

| Date | Things to do |
|---|---|
| 5th Nov | Departing from Narita airport and arriving at London Heathrow airport |
| 6th Nov – 16th Nov | Observations, meetings and research activities at the UCL<br>7th Nov – Meeting with Professor Nick Tylor and Dr. Tatsuto Suzuki and tour at PAMELA<br>12th Nov – Meeting with Dr. Taku Fujiyama |
| 18th Nov | Departing from London Heathrow airport |
| 19th Nov | Arriving at Haneda airport |

Apart from the activities at PAMELA, I did some field observations, particularly to observe behavior of pedestrians and cyclists, at several signalized intersections located in London (near Hyde Park, scrambled intersection near Oxford Circus station and 'modern roundabout' with special traffic signals and lanes for cyclists near Elephant and Castle station). This is not the main purpose of this visit, however, I made it an opportunity to conduct some observations for future research purposes.

## 研修先について About the laboratory visited

Main host of my visit was PAMELA of UCL. PAMELA is a state of the art laboratory for conducting experiments with human subjects. Professor Nick Tylor is the head of this

laboratory and Dr. Tatsuto Suzuki is a technician and a senior researcher at this laboratory.

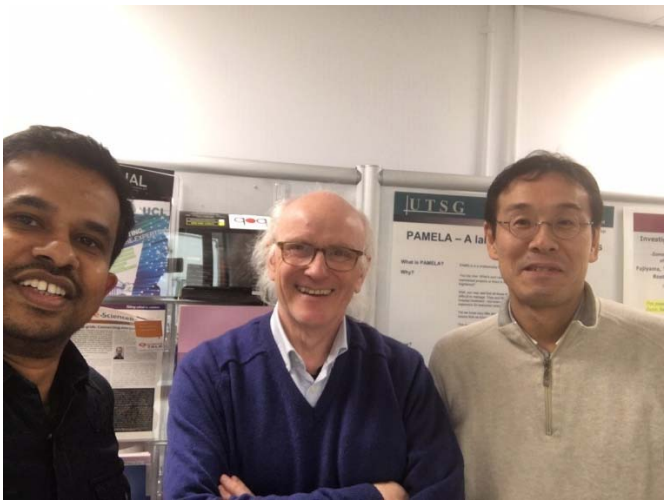


Figure 1. After the meeting with Prof. Nick Tylor (middle) and Dr. Tatsuto Suzuki (right) at PAMELA

Apart from visiting PAMELA, I had a meeting with Dr. Taku Fujiyama (associate professor at the department of Civil, Environmental and Geomatic Engineering of UCL), who was the person I contacted to arrange my visit, to discuss about my research activities and possibility of conducting future research collaborations.

## 研修内容 What you learned

Empirical data are required to understand pedestrian behaviors and to calibrate/validate simulation tools which are being currently used to plan and design crowd gathering places. Controlled experiments are one method of collecting such empirical data. Several controlled experiments have been conducted at IIS (in front of building A and the open space of RCAST) by Kuwahara lab, Oguchi lab and Nishinari lab. I involved in the experiment conducted by Oguchi lab. However, specially designed indoor experiment spaces are rare. PAMELA is the only experiment space I have heard and seen so far.

Different experiments are conducted at PAMELA experiment facility for a range of purposes, such as;

a. To understand basic behavioral characteristics of pedestrian and crowd dynamics for planning pedestrian facilities, e.g., train stations.

b. To understand movement characteristics of patients with different diseases, e.g., Parkinson, Alzheimer, issues related to vision
c. To evaluate transport or accessibility needs for disabled people

Controlling factors, such as width of the bottleneck or corridor, angle of the bend of the path etc., are possible in case of control experiments conducted at open or indoor spaces which are not particularly designed for experiments. However, controlling factors, such as lighting levels, noise levels are impossible. At PAMELA controlling such factors is also possible through a sophisticated lighting and 3-D sound systems. Further, mockups (e.g., trains cars, staircases) can also be incorporated for conducting experiments.
Another interesting feature I observed at PAMELA was the 'force plate' which is used to calculate ground contact forces and torques (when walking and making turning movements) in 3-D space (i.e., x-, y- and z- components).

## 研修先で特に印象に残ったこと The most impressive thing

The most impressive thing during my visit to London was the PAMELA experiment space as I observed such facility for the first time.
Further, traffic signals specifically for cyclists was also impressive. Although I have seen separate lanes for cyclists (Figure 2), I saw traffic signals specifically designed for cyclists (Figure 3) for the first time in London.

Figure 2. Exclusive lanes for cyclists (near King's Cross station and near Elephant and castle Station)


Figure 3. Traffic signals for cyclists (near King's Cross station and near Elephant and castle Station)