

Report on completion of the short-stay study abroad program

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Period of study:	August 15 th – September 14 th , 2016
Date of report:	September 29 th , 2016

1. Research Theme

Linked Open Data for Medical Domain and Internet of Things
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2. Summary of the activity

(Note) Describe the following points.

- 1) Summary of the research activities
- 2) Role of the program in your research and how to make use of the experience
- 3) Concrete outcomes including what you learned (discussed) through the program

Summary of my research activities

During the short-stay program, Prof. Dietrich Rebholz-Schuhmann gave me opportunity to learn the research and development of Linked Open Data (LOD) in the Medical Domain with Dr. Ratnesh Sahay, and the Internet of Things (IoT) with Dr. Martin Serrano.

Week 1: I set up the research theme with Prof. Dietrich and did knowledge sharing with Dr. Ratnesh's research team about LOD-based medical data analysis and my research.

Week 2: I learned the principle of bioinformatics including gene mutation and cancer.

Week 3: We set up a topic to discover potential relationships among entities in RDF-based medical data using network analysis together with domain classification.

Week 4: I continued working with the set-up project. In addition, I attended the IoT workshop managed by Dr. Martin, and joined the IoT hackathon event.

Week 5: I continued participating the IoT workshop. On the last day, I went to the student conference that exhibited academic works of students and researchers among all branches of the Insight Centre in Ireland.

Role of the program in my research and experience

This program enables me to fulfill the future of my research with the practical ability of LOD.

- Medical data analysis emphasizes me to use the integration of data from different ontologies for empowering the data analysis.
- IoT lets me realize the potential future of LOD in the industry domain. LOD will enhance the interoperability of various sensing data for improving human life and social activities.

Concrete outcomes

- For the medical data analysis, I was assigned to discover the relationship among entities from different ontologies of the medical data. Since the analysis of data from the medical domain (including genes, mutations, cancers, sequence analysis, etc.) is a highly challenging task, this project has to be continued after this short-stay program.
- For the IoT, my team created a visualization tool for observing the ratio of data from different types of sensors in a building, and this project was chosen for workshop demonstration and awarded. It is proceeded to enable the compatibility with data from VITAL (vital-iot.eu), which is one project of the 7th Framework Programme (FP7) of the European Union.