



News Release

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We have started collaborative research with Shiga University to cultivate data scientists who are well-versed in the manufacturing industry

Sumitomo Metal Mining Co., Ltd. (Head office: Minato-ku, Tokyo, President & Representative Director: Akira Nozaki, “SMM”) and National University Shiga University (Administrative Office : Hikone City, Shiga Prefecture, President: Ryuichi Ida, “Shiga University”) have begun collaborative research related to the education of data analysis for the manufacturing process.

This collaborative research is aimed at developing practical data analysis learning materials for students who are studying data science. SMM will offer the university the opportunity to engage in the experimental creation of analysis data for processes that are akin to those of an actual manufacturing site. We’re aiming to cultivate data scientists who are well-versed in the manufacturing industry through this industry-academic collaborative initiative.

Shiga University established the first data science department in Japan, and has had success in the fields of data analysis and talent cultivation, all while collaborating with companies in various types of industry. SMM was recognized as one that could make contributions to their practical education, and we’ve begun collaborative research.

We formed a collaborative research contract for the offering of mock process data for use in the practical study of manufacturing process analysis. Collaborative research was started in earnest in September 2020, when SMM supplied equipment for experiments to the office of Professor Kaoru Kawamoto of the Data Science Department.

More concretely, they will use the crystallization (the formation and growth of crystals) process as an example and will conduct practical experiments to solve issues through data analysis that would come up in an actual manufacturing site, in things like preparation. They will do this while gathering data on particle size distribution and diameter over time.

The equipment that SMM has supplied Shiga University with is able to measure particle

size in real time while creating fine crystals through the crystallization process. This will allow them to perform data analysis on the causal relationship between changes in the reaction conditions and in the particle size distribution. They can create data that conforms to the analysis techniques they want to teach through altering the crystallization conditions.

The rapid advancement of digitalization in manufacturing through things like AI and IoT has led to an increase in the volume and complexity of the data being handled in recent years. Amid this, the importance of data scientists that can tackle manufacturing site issues based on data is increasing. However, to utilize the results of data analysis at manufacturing sites, what's necessary in addition to statistical analytic ability is specialized knowledge related to operations and the techniques to ascertain what data will be able to contribute to the solving of issues.

SMM has been developing a variety of techniques to implement the analysis of data from IoT, like utilizing data in the autoclave process and the dezincification process at Taganito HPAL Nickel Corporation, a subsidiary of SMM, and the development of a set of techniques that will allow their practical application is now in sight. Now, what's becoming an issue is how to recruit and cultivate data scientists that can fully utilize data analysis so that we can apply the data analysis techniques we have cultivated to the quality control management and preventative maintenance of a variety of manufacturing processes. This collaborative research is an endeavor that is perhaps the first of its kind in the world, allowing a university that teaches data science to create their own mock manufacturing process data and then offer it as genuine learning materials to students. This will allow them to offer not just fundamental education on statistical analysis, but also applied education aimed at practical manufacturing.

Through this collaborative research, we will endeavor to cultivate data scientists who are well-versed in the manufacturing industry and make contributions to the strengthening of Japan's manufacturing. Additionally, through this initiative, SMM is aiming at becoming the "company that generates resources through high technological capabilities" laid out in our "Vision for 2030".



(University members around the experiment equipment supplied by SMM)

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