SMS digital

P R E S S E M I T T E I L U N G

Data science meets steel: Data scientists develop algorithms to improve defect detection in steel casting

etventure

- **SMS digital and etventure are developing a data lab for data science topics, and leading the first public Industry Data Challenge along the road to success**
- **The aim of the Data Challenge was to significantly improve the quality of data detection in the continuous steel casting process.**
- **The successful conclusion of the Data Challenge with more than 130 participants is a prelude to future projects for the SMS data lab.**

Düsseldorf/Berlin, 27 January 2017 – Using modern data science methods, the SMS group has managed to break new ground in the traditional steel industry. In just three months, substantial results have emerged that will solve a traditional industry problem and improve the quality of the existing continuous steel casting process. A recognised problem with this is the occurrence of cracks in steel girders.

As a pioneer in its industry, SMS digital has employed state-of-the art methods and data science to develop solutions for this problem through the SMS Data Challenge.

"Data are an increasingly important factor in production. Working with etventure, we were able to achieve a tangible result for the organisation in just three months," explained Maximilian P. Wagner, CEO of SMS digital. "The Data Challenge enabled us to test many different approaches, and we were positively surprised that even defects that lay beyond our expectations were detected," added Markus Reifferscheid, Head of Research & Development at SMS group.

Data Challenge delivers solutions beyond expectations

Thanks to the machine learning procedure of the winner, Florian Borchert from Germany, an approach was highlighted for detecting defects on the girder surface that lay outside the sensor area. The engineers at SMS assumed that no cracks could be detected in the "blind spots" between the temperature sensors below the surface. But the methods, which are based on "conditional random fields", enabled Florian to make use of additional cause-effect relationships that were hidden in the data.

Thanish Batcha from India, who had flown in specially for the award ceremony, took second place. Thanks to a very structured approach and the clearly conducted statistical method, he was able to predict all known metallurgical effects despite a lack of expertise in metals. In

addition, the participants were able to detect two relationships in girder brittleness that were not previously known.

Marc Weimer-Hablitzel, Senior Manager Data Science at etventure, said: "With the Data Challenge, we succeeded in highlighting ways in which you can make direct use of data without making massive financial investments in big data. It's important to act in relation to the use case and not gather data randomly. The use of the "crowd" enabled us to utilise the latest methods and best approaches of a wide range of specialists, thus developing a very significant advantage and added value for SMS group.

Together with etventure, SMS group is developing new digital business models and has created an independent digital unit with SMS digital for this purpose. In total, 130 data scientists from all over the world took part in the SMS Data Challenge. The winner received prize money of EUR 15,000, and the runner up EUR 5,000. With the conclusion of this first successful Data Challenge, the course is set for future projects in the field of data science.

About SMS digital:

SMS digital GmbH is an independent entrepreneurial unit which develops and markets digital products in direct contact with customers and in collaboration with SMS experts. In this way, SMS digital combines metallurgical process expertise and specialist technological knowledge with the development of digital products, thus creating the best possible solutions for its corporate clients.

SMS digital is a leading provider of digital solutions in industry, and supports its clients with innovative products to achieve top performance on the basis of optimised processes. In order to reach these goals, it designs and develops platform solutions and solutions in the field of predictive intelligence.

About etventure:

"Only true entrepreneurs drive digital transformation." Digital consultancy and company builder etventure identifies, develops and tests digital business approaches across different sectors. With the four business areas of Corporate Innovation, People & Education, Innovation Spaces and the Startup Hub, etventure is represented along the entire innovation project value chain. Its corporate clients include insurance company Wüstenrot & Württembergische Versicherungen, Deutsche Bahn, Daimler Financial Services, Franz Haniel & Cie., SMS group, Putzmeister and steel company Klöckner. etventure was established in 2010 by its directors Philipp Depiereux, Philipp Herrmann and Dr Christian Lüdtke. The etventure team consists of over 250 digital experts and entrepreneurs at offices in Berlin, Hamburg, Munich, Essen, Stuttgart, Hong Kong, London, New York, Paris and Zurich. www.etventure.com

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