TRACK 1

Big Data and the Internet of things

The Big Data and IoT-track is sponsored by Siemensfonden.

Throughout all sectors of society, mountains of data are continuously generated from multiple sources, products and devices. The prospects of transforming these data into reliable information and insight are immense, not only with regard to products and services but to society as a whole.

The growth potential for firms that succeed in harnessing big data in their products and services is significant. Some industries and firms are already able to optimize or develop new products by capitalizing on the insight gained through data generated in products and services, through social media and other kinds of consumer interaction, or by using public data increasingly being made available for example through government open data programs.

This session will discuss how Big Data may serve as a driver for growth and innovation. Speakers will present hands-on experiences from two Danish firms shedding light on prospects and possibilities, but also on some of the challenges and obstacles these firms have encountered. The session will also discuss how Big Data from patients can lead to insights into a population's disease characterization and into improved patient treatment and drug design.

This session is held in English.

Programme

3:00	**Introduction** *Professor Lars Arge, Department of Computer Science, Aarhus University* Moderator of the session
3:10	**Making sense of Big Data and Internet of Things** *Senior Vice President Henrik Mørck Mogensen, Kamstrup* Big Data and Internet of Things are technologies and just that! The main challenge when exploiting the endless possibilities these technologies present is what to use them for and how. To help find the

answers to these questions Kamstrup has turned to their customers. Kamstrup is a leading provider of intelligent metering solutions and services for heat, water and electricity utilities. Through examples Henrik Mørck Mogensen will show how Kamstrup has combined the use of Big Data and IoT with customer involvement and design thinking to make sense of the new possibilities.

3:35   **Big data and big compute at Vestas Wind Systems A/S**
Chief Specialist Anders Rhod Gregersen, Vestas Wind Systems
Vestas is the world leader in wind energy. In order to remain so, Vestas is utilizing High Performance Computing (HPC) in various areas. These include finding the optimal locations for new wind turbine installations with respect to energy production and forecasting the energy production. Vestas is also daily creating value from petabytes of data. Working with data at the petabyte scale is not feasible with relational databases. Vestas has succeeded in implementing database-like capability that scales. This talk addresses how Big Data and big compute has become big business for Vestas.

4:10   **Turning big data from millions of patients into disease maps for the entire population**
Professor Søren Brunak, University of Copenhagen
It is increasingly recognized that patient health data is of considerable value for improving patient treatment, for design of novel drugs, and for reducing the high level of side effects from drugs in use today. Massive collections of health data position Denmark well for precision medicine where individual patients should receive better treatment. The talk will report on the field of big biomedical data and how molecular data (for example whole genome DNA sequencing) can be integrated with clinical data in order to produce fine-grained patient characterization in a lifelong perspective.

4:35   **Discussion**
Facilitated by Lars Arge
During the discussion session, there will be an opportunity to ask questions and present comments to the speakers, as well as discussing Big Data opportunities and challenges. Questions for discussion could include:
Is big data only for big business?
What are the possible societal benefits from big data analysis?
Which skills are needed to address big data issues in industry – and are academia providing students with these skills?
How can industry and academia cooperate more on big data challenges?
How can public free data support big data innovation?

4:55	**Summing up**
	Facilitated by Lars Arge

5:00	**Short break**
	Please proceed to the large conference room for the last part of the Technology Day.