MADALGO
CENTER FOR MASSIVE DATA ALGORITHMICS

AARHUS UNIVERSITY

Danmarks Grundforskningsfond
Danish National Research Foundation
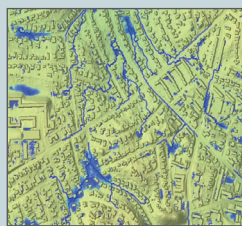
2014 Highlights

Research team

At the end of 2014 the center research team consisted of eight senior researchers (4 at AU), five Postdocs (all at AU) and seventeen PhD students (9 at AU).

Additionally, two further Postdocs and three PhD students (who obtained PhD degrees during the year) were part of the center in 2014. Almost all center Postdocs are internationals and so are all but three of the PhD students.

Research collaboration and results

In 2014 MADALGO researchers published 87 peer reviewed research papers within the center research areas. Several of these papers have appeared in highly ranked journals and conference proceedings. Some of the results in the papers have been obtained with the many international researchers that have visited MADALGO in 2014. The center also has extensive multidisciplinary and industry collaboration.

Using modern remote sensing techniques, very accurate and detailed (and thus massive) measurements of the earth surface can be obtained. For example, several hundred billion measurements (4 per square meter) is currently being collected for Denmark. Such measurements can e.g be used to model water flow in order to predict flooding from extreme rain.

In 2014 the center developed algorithms that can efficiently process massive amounts of terrain measurements to estimate risk of flooding from water flowing in rivers and on the terrain. Previously, the center has developed efficient algorithms for estimating risk from water gathering in terrain depressions and from rising sea-levels.

Centerevents

Apart from a large number of smaller research seminars and workshops, as well as a retreat for center employees, MADALGO organized a four day international summer school on "Learning at Scale" in 2014, where four international experts lectured for 67 participants (mostly PhD students) from 26 institutions and 5 companies in 14 countries. The center also organized the Fifth Workshop on Massive Data Algorithmics (MASSIVE 2014) as part of the main European algorithms event ALGO in Wroclaw, Poland.

In 2014 center researchers gave numerous presentations at international research conferences, as well as more than 35 invited presentations at research conferences, workshops and seminars. Center researchers have also participated in several public outreach activities, including as keynote speakers at several large "big data" events.

Awards and acknowledgments

Center researchers received a number of awards and acknowledgments in 2014 including the following:

Center senior researcher Mehlhorn won the Academia Europaea Erasmus Medal and Center PhD student Larsen won Aarhus University Research Foundation PhD price. Center researcher Sandel was appointed editor of Ecography and of Scientific reports, and center director Arge serve as program committee chair for the 2015 Symposium on Computational Geometry.