Welcome!

Dear reader,

Right now you are reading the very first SAILS newsletter. In this newsletter, you will find news, events and meet the researchers of the SAILS program. If you want to be updated about our events and receive the newsletter in the future, join the SAILS mailinglist! If you know anyone who might be interested in SAILS and its activities, please feel free to forward this newsletter.

Our next newsletter will be send out after the summer. We wish you all a good summer!

In the spotlight

## Bart Custers: Interdisciplinarity needed to face the legal challenges of AI

In his inaugural lecture as SAILS Professor, Bart Custers addressed the legal challenges and opportunities that AI and big data pose to our changing society. He thereby emphasized the importance of a good balance between exploring the opportunities and preventing the risks.

Custers especially sees a lot of challenges in the regulation of data science: 'Many laws are not easily applicable to the developments in the field of data science. Legislation cannot keep up with the technological developments. Already we are facing issues with the constitutional protection of e-mail and Whatsapp. As technology keeps on developing, new laws will be needed to handle issues such as cybersecurity or the liability for self-driving cars.'

On the other hand, Custers sees lots of opportunities, mainly in research and the practice of law. 'With the data we have, predictions about the possibility of

success in a legal case can be made,' Custers says. 'This gives an estimate of whether it is useful to go to court in the first place. Legal big data may also help with preparing and researching a case, leading to more accuracy and reliability of legal research and the development of new theories to enhance legislation. Furthermore, data analysis can be used to find out whether there is support for legislation.'

'To face the challenges of the future, we need an open mindset,' Custers emphasizes. 'We need to look across the boundaries of our own disciplines and work together. However, this should not be done at the expense of depth. Only together we can handle the challenges we're facing. Now is the right time to think about the direction in which we want to go. The future depends on what we do today.'
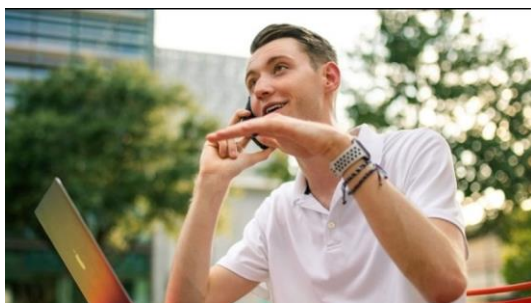
Whispering out loud

Whispp, a Leiden-based speech technology start-up, is developing an app to help people who stutter express themselves more freely. Among those working together with Joris Castermans and his team at Whispp, are researchers and students from the Leiden University

Centre for Linguistics (LUCL).

Read the full article >>

Robots in Archaeology

The start of Tuna Kalayci's career did not hint at a segue into Archaeology. 'Originally I trained to be a statistician. However, in the course of my studies I realized that I did not wanted to use my quantitative skills in a bank, nor wear a tie.' That is where archaeology came in. 'I started to learn about GIS, geophysical prospection, and other remote sensing techniques.'

Read the full article >>

Upcoming events

21 June: SAILS Lunch Time Seminar with Marco Spruit

On **21 June 2021 at 12:00 noon CEST**, Prof. dr. Marco Spruit, Professor of Advanced Data Science in Population Health, will give the last SAILS Lunch Time Seminar of this academic year. His talk has the title *Natural Language Processing for Translational Data Science in Mental Healthcare*.

More information >>

25 June: SAILS Summer Conference on Law & AI

On **25 June 2021, from 13:30 to 17:00 CEST**, Leiden Law and SAILS present the online SAILS Summer Conference on Law & AI.

Three main topics will be discussed:

1. Advances in the regulation of AI
2. AI interacting with the Law
3. Teaching the future generations on Law & AI

Registration & more information >>

Your research as SAILS Lunch Time Seminar?

Are you working on a topic related to Artificial Intelligence and want to present your research to a broad audience? For the SAILS Lunch Time

Seminar, we are always looking for researchers who want to share their research with others.

Contact Mischa Hautvast for more information.

3 Questions

In every newsletter, we ask one of our researchers what they are currently working on. This time: Dr. Mitra Baratchi, Assistant Professor at LIACS.

1)   What is the objective (goal) of your project?
To improve machine learning algorithms for environmental parameter estimation from Earth Observations (EO) collected by satellites. Currently, there are two modelling paradigms for this;
1)   Widely-adopted theory-driven physical models: these models often lead to imprecise results due to their ill-posed nature.
2)   Data-driven models acquired from machine learning algorithms: these

models can offer higher accuracy and precision by capturing global spatio-temporal patterns in data. However, this quality is attained at the cost of physical consistency.

Combining these two is the goal; creating a generic hybrid-modeling framework based on EO data using advance AI techniques. Highly accurate forecasting models of detailed environmental parameters will be generated.

2)   What do you consider to be the most fun part of it?

Firstly, the inspiring collaboration between researchers from the Automated Design of Algorithms (ADA) at (LIACS), the European Space Agency (ESA-ESRIN) (the main European organization collecting Earth observations) and the Institute of Environmental Sciences (CML).

Secondly, it is really exciting and rewarding to know that this project fits within the grand plans of ESA for creating a "digital Twin of Earth". Such a digital twin is envisioned as a comprehensive model of the Earth system that will allow better decision support for addressing major environmental challenges, such as global warming and nature conservation.

3)   What is the most unexpected outcome (so far)?

A master student in the ADA research group developed an interpolation scheme that can fill in missing values on spatial maps. We found that this technique has the potential to be used for a different purpose, namely, removing clouds from satellite images (or seeing through clouds). A large proportion of images acquired from optical sensors are blocked by clouds. A technique that can effectively reconstruct images by removing the clouds, therefore, can create a huge impact. This was an interesting and unexpected result of our collaborations with researchers at ESA and the institute of CML.

Meet the SAILS PhD's

Tom Kouwenhoven

It is a familiar phenomenon: you ask the assistant on your phone to call your mother, but it calls a friend instead. Tom Kouwenhoven, PhD student in the SAILS programme, investigates how humans and Artificial Intelligence (AI) can better communicate with each other, so that these kinds of situations will no longer occur in the future.

[Read the full interview with Tom >>](#)

Bits & Pieces

Alumni magazine puts AI in the spotlight

The alumni magazine of Leiden University, Leidraad, published a file on AI and interviewed many SAILS researchers for this.

Read the alumni magazine (in Dutch) >>
Read a translated interview with Tessa Verhoef >>

Stay updated through the SAILS blog!

Did you know SAILS also has a blog? Here, you can read more about the research that happens within SAILS and about the events SAILS organizes.

Read the blog >>

More information

If you want to know more about the SAILS program, have questions or something interesting for the next newsletter, please contact Mischa Hautvast.

If you are interested in joining the SAILS mailinglist or know someone who might be interested, subscribe here