

*"Before we work on artificial intelligence why don't we do something about natural stupidity?"*

- Stephen Polyak, American neuroanatomist and neurologist (1889-1955)

## Latest Highlights

### New Publications

- B. Ghosh, M. Motagh, M. Haghshenas Haghghi, M. Stefanova Vassileva, T. Walter and S. Maghsudi (2021). **Automatic detection of volcanic unrest using blind source separation with a minimum spanning tree based stability analysis.** *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing.* [doi.org/10.1109/JSTARS.2021.3097895](https://doi.org/10.1109/JSTARS.2021.3097895)
- T. Rettelbach, M. Langer, Moritz, I. Nitze, Ingmar, B. Jones, V. Helm, J-Ch. Freytag, and G. Grosse (2021). **A Quantitative Graph-Based Approach to Monitoring Ice-Wedge Trough Dynamics in Polygonal Permafrost Landscapes.** *Remote Sens.* 2021, 13, 3098. <https://doi.org/10.3390/rs13163098>
- J.L. Rumberger, X. Yu, P. Hirsch, M. Dohmen, V.E. Guarino, A. Mokarian, L. Mais, J. Funke, and D. Kainmueller (2021). **How Shift Equivariance Impacts Metric Learning for Instance Segmentation.** Accepted at the IEEE/CVF International Conference on Computer Vision (ICCV).
- B.K. Biskaborn, L. Nazarova, T. Kröger, L.A. Pestryakova, L. Syrykh, G. Pfalz, U. Herzschnuh, and B. Diekmann (2021). **Late Quaternary Climate Reconstruction and Lead-Lag Relationships of Biotic and Sediment-Geochemical Indicators at Lake Bolshoe Toko, Siberia.** *Front. Earth Sci.*, 9, 703. <https://doi.org/10.3389/feart.2021.737353>

### Conferences

- B. Ghosh, M.H. Haghghi, M. Motagh, and S. Maghsudi. **Using generative adversarial networks for extraction of InSAR signals from large-scale Sentinel-1 interferograms by improving tropospheric noise correction,** *Oral presentation at the ISPRS Congress*, 4-10 July 2021.
- P. Graniero, D. Rößler, C. Ulbrich, and N. Kliewer. **Potentials and Challenges for Integration of Electric Bus Fleets and PV-Systems.** *Oral presentation at 31st European Conference on Operational Research (EURO 2021) in Athens, Greece / online*, 11-14 July 2021.
- A.H.C. Vlot, S. Maghsudi, and U. Ohler. **Single-cELL Marker IdentificaTiON by Enrichment Scoring.** *Poster and oral presentation at the ISMB/ECCB 2021*, Online, 25-30 July 2021.
- L. Nazaretyan. **The Regulatory Mendelian Mutation (ReMM) score for GRCh38.** *Poster presentation at virtual ISMB/ECCB 2021*, 25-30 July, 2021.

- H. Stolte. **Checking Plausibility in Exploratory Data Analysis.** *PhD Workshop at 47<sup>th</sup> International Conference on Very Large Databases*, Copenhagen, Denmark, 26-20 August 2021.

### Prizes

- Binayak Ghosh and his colleague Shagun Garg from the GFZ (team *shagun1511*), [ranked in the third place](#) at the [NASA ETCI 2021 Competition on Flood Detection](#) from Sentinel-1 data. The event, organized by [NASA IMPACT in collaboration with the IEEE GRSS](#), seeks to develop approaches to delineate open water flood areas as an effort to identify flood extent, an impactful disaster that occurs frequently throughout the world. The competition involved a supervised learning task—to develop algorithms to identify flood pixels after training their algorithm against a training set of synthetic aperture radar (SAR) images from around the world. Binayak and Shagun Garg trained a deep learning algorithm based on this dataset and applied it on the Test dataset provided by NASA. The primary metric for ranking was the mean IOU (Intersection over Union) of the developed model on the Test dataset.
- HEIBRiDS PI Guillermo Gallego is among the [five awardees](#) in the category “Outside Associate Editors” that are selected annually by IEEE.

### Perma-X 2021 - Aerial Imaging Campaign in West Alaska, USA

Under the lead of the Alfred Wegener Institute (AWI), and in scientific collaboration with the German Aerospace Center (DLR) and the University of Fairbanks (UAF), a crew of five researchers and logisticians (including HEIBRiDS PhD student Tabea Rettelbach and her supervisor Prof. Dr. Guido Grosse) from AWI headed to Kotzebue, AK, USA in June and July



2021 to conduct an aerial imaging campaign with AWI's Polar-6 aircraft. The goal of the expedition was to acquire very high resolution imagery with the Modular Aerial Camera System (MACS; designed by DLR) and high resolution digital terrain models with laser scanners, to map and monitor

(changing) permafrost landscapes in West Alaska. With such high resolution data, it is possible to monitor permafrost related activities such as coastal erosion, changes in lakes, thaw slumps, or ice-wedge thaw, all of which are especially vulnerable in the face of a changing climate. Overall, more than half a million images were captured and ca. 3600 km<sup>2</sup> mapped. Data is available to any interested researcher upon request.

## Announcements / Upcoming Events

### Helmholtz Transferable Skills Courses

The Helmholtz Transferable Skills Courses are conducted in collaboration with trainers from Imperial College London, University of Surrey, and Helmholtz tutors. Course II: Leadership Skills in Research Course (2nd year students), will take place online on **September 7-9, 2021**. Course I: Research Skill Development Course (1st year students), will take place online on **October 12-14, 2021**. Contact [Eirini](#) for registration.

### 1<sup>st</sup> AI-Hero Hackathon 2021

The 1<sup>st</sup> AI-HERO Hackathon for Energy-Efficient AI will take place on **September 28-30, 2021**. This Hackathon is targeting advanced AI-researchers with experience in model development, training and optimization. Participants will join into teams of three to tackle model development for two use-cases, one from the research field of health and one from the research field of energy. The challenge is finding and optimizing a model and its training to minimize energy consumption. The winning team and runner-ups of each use-case will be awarded with awesome prizes, kindly sponsored by Lenovo. PhD students and PostDocs from all Helmholtz Centers, Programs and associated universities are welcome to apply. Due to the ongoing pandemic situation, the Hackathon will be fully virtual via Zoom. Detailed information on registration, schedule and participation requirements can be found [here](#).

### HIDSS4Health Lecture Series

**Data Science & Health** is a lecture series offered online by our sister Research School HIDSS4Health. It covers data science methods (e.g. clustering, image analysis, visualization, deep learning) as well as domain-oriented methods (e.g. medical imaging, surgery), and takes place weekly on **Tuesdays from 2-3.30 pm**. For more information and details on topics, please visit the HIDSS4Health [website](#). Registration is required and can be done via this [link](#).

### HIDA Virtual Annual Conference – SAVE THE DATE: NOV 30, 2021

The [HIDA Annual Conference 2021](#) is aiming at connecting Helmholtz researchers throughout the institutions via networking events and workshops. In particular, doctoral and postdoctoral researchers within the Helmholtz association and with a research focus in information & data sciences could use this event as an opportunity to discuss their projects with researchers from other Helmholtz centers. More details soon..

### Free, online seminars from the Bitkom Akademie

The [Bitkom Akademie](#) is part of the network of the German digital association Bitkom and is dedicated to the training and further education of specialists and managers for the digitized world of work. It offers a large number of [free one-hour seminars](#) that introduce different topics within digital transformation, IT security, data protection, project management, law & finance and digital marketing. All seminars are offered in German. When registering for an event, please enter the keyword “Helmholtz”, your center and your position in the “Job Description” field.