RESEARCH GROUP

www.list.lu/en/informatics/responsible-data-science-analytics-systems/group/?tx_listreference_pi1%5BresearchGroup%5D=28&cHash=62c59efcf0a686a4f06cdbbb94826ad0

Data Processing and Statistics



The Data Processing and Statistics group undertakes applied research in computer science with a focus on Data Analytics, Artificial Intelligence and Statistics. Driven by its impact in the society and the economy, the research group is supporting the digital and the ecological transition of our society.

Main expertise fields

- Advanced statistics
- Processing of structured and unstructured dynamic data
- Data fusion from heterogeneous sources
- Transfer Learning
- Social Media Analytics
- Image processing
- Data analytics with human in the loop

Research challenges

- How to combine computer-based analysis and human input to build efficient knowledge models?
- How to make data analytics fast and scalable (e.g. using distributed computing approaches)?
- How to ensure reproducible workflow for scientific data production and analysis?
- How to support complex decision-making based on continuous interpretation of data flows?

Application fields

- Industry 4.0
- Space
- ICT
- Environmental Applications
- Security and Defence

Main assets

- DMSS: Maintenance support tool based on live analysis of spacecraft telemetry data
- ISSTelemetryDataLoader: live analysis of telemetry data coming from the ISS
- Cadral: predictive analytics and machine learning platform
- GapIt: Data driven infilling of missing value in data streams
- Camomile: Collaborative annotation framework
- Publimape: Social media mining tool

Equipment

- Access to world class High Perfomance Computing (HPC) infrastructure
- Access to LIST Data Analytics Platform

Selected Publications

1. Bruneau, P. & al. Measuring the Impact of Natural Hazards with Citizen Science: The Case of Flooded Area Estimation Using Twitter. Remote Sensing, vol. 13 (6), 2021.
2. Nava, R. & al. Tire Surface Segmentation in Infrared Imaging with Convolutional Neural Networks. Pattern Recognition, ICPR International Workshops and Challenges, Lecture Notes in Computer Science, vol. 12665, Springer, 2021.
3. Parisot, O. Tamisier, T. Automated Machine Learning for Wind Farms Location. Proceedings of the 10th International Conference on Pattern Recognition Applications and Methods - ICPRAM, ISBN 978-989-758-486-2, 2021.
4. Bhattacharya, S. & al. A robust software watermarking framework using shellcode. Multimed Tools Applications, vol. 79, 2020.
5. Bhattacharya, S. & al. Blockchain vs GDPR in Collaborative Data Governance. Lecture Notes in Computer Science, vol. 12341, Springer, 2020.
6. Bhattacharya, S. & al. FireBird: A Fire Alert and Live Fire Monitoring System Based on Social Media Contribution. Lecture Notes in Computer Science, vol. 12341, Springer, 2020.
7. Molitor, D., Baus, O., Didry, Y. et al. BotRisk: simulating the annual bunch rot risk on grapevines (Vitis vinifera L. cv. Riesling) based on meteorological data. International Journal on Biometeorology, vol. 64, 2020.
8. Nava, R. & al. Estimation of the dynamic contact area from a rolling tire correlated to expert assessment. IEEE ACCESS, vol. 7, 2019.
9. Parisot, O. Pinheiro, P. Hitzelberger, P. DMSS: Decision Management System for Safer Spacecrafts. Ad-Hoc, Mobile, and Wireless Networks, Lecture Notes in Computer Science, vol. 11803, Springer, 2019.

Partners

University of Lorraine (FR) , University of Geneva (CH) , CEA Tech (FR) , KU Leuven (BE) , Goodyear , Agroptimize , RSS-Hydro , Ceratizit , Ministry of Environment

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