Are you looking for a PHD in the high-impact fields of Data Management, Data Integration and Interoperability, Data Platforms, and Machine Learning Systems? Are you eager to learn, like to work independently, but also in a team? Would you like to make an important scientific contribution? We look forward to meeting you!

# PhD in Data Management for Data Platforms (38,5 h/w) in Graz

The data management for data science laboratory (DAMS Lab) – as a cross-organizational research group, uniting the data management group of Graz University of Technology and the research area data management of the co-located Know-Center – offers a fully funded PhD position for 4 years in the context of the project "ReWaste F" (**Re**cycling and Recovery of **Waste** for **F**uture) starting March 1st, 2021 or soon thereafter.

**ReWaste F Project:** As a continuation of ReWaste 4.0, the ReWaste F project assembles four scientific and 14 industrial partners along the entire value chain of waste management, recycling, and digital platforms. The goal is a transformation of the Austrian waste management industry towards a circular waste economy and technology according to the European Green Deal 2019 for sustainable and resource-efficient development of Europe. In this context, the project considers current and future waste streams (i.e. non-hazardous mixed waste with focus on contained (bio)plastics and special waste streams), technology (machines, sensors, sensor fusion, cameras etc.) and digitalization (data analytics, simulation, and intelligent material-machine-machine interoperability). To this end, dedicated subprojects will investigate waste materials and properties, waste management processes, sensor-based simulation and analytics, and a digital platform for interoperability, integrated data analysis, monitoring, and control.

**Open Position:** In the context of the ReWaste F project, this PhD position at Know-Center is supported by several senior researchers from the Know-Center and other partners, and focuses primarily on a

### A Data Platform for Consolidated and Federated Data Storage and Analysis

which contributes key techniques to the overall system architecture of an integrated digital platform for waste and recycling management. Research directions include (1) hybrid consolidated and federated multi-modal data storage and analysis (structured data, time series, images, text); (2) the integration of heterogeneous data sources, exchange formats, and communication protocols; (3) the management of data provenance and meta data along the entire value chain from data collection and preparation, over cleaning and consolidation, to data analysis and automated control; and (4) the integration of dedicated data mining and simulation techniques into an extensible, domain-specific analytics toolbox. Research assistants on this position are expected to pursue a PhD study at the Institute of Interactive Systems and Data Science at Graz University of Technology, under the supervision of Matthias Boehm (https://mboehm7.github.io/; for further questions, email mboehm@know-center.at).

**Qualifications:**
- University degree (MSc or equivalent) in computer science, software engineering, related fields
- Programming experience in Java, Python, and C/C++ (at a level to build working prototypes)
- Basic background in data management, data integration, and distributed computation
- Motivation, team work, independent problem solving, and strong communication skills
- Very good English (written and spoken), German is advantageous but not a requirement

**We offer:**
- Close supervision of your PhD project, with industrial/scientific collaborators and networking opportunities
- High-impact, system-oriented research on data management and data platforms
- Opportunities for professional and personal development
- Very good work-life balance and good working atmosphere in a research environment

The gross salary for this full-time-time job (38.5 h/week) is **3,050 EUR** per month (14 times per year). We look forward to receive your application at career@know-center.at (mentioning ReWasteF in the subject) by the deadline **January 18, 2021** with the usual documents (CV, copy of master degree, optionally others).