EdgeLeap partners with 9 million euro research programme to fight heart failure

EdgeLeap B.V, a data science company providing consultancy and tailored solutions to life science and healthcare industry, has partnered with the innovative multidisciplinary program FIGHT-HF that sets out to revolutionize the management of patients with heart failure.

Over a period of five years, and powered by a budget of 9 million euros, the FIGHT-HF program coordinated by the Center of Clinical Investigation Unit at the University Hospital of Nancy, University of Lorraine, and INSERM, will leverage large patient datasets, cutting edge data science technology, and clinical expertise to realize precision medicine for heart failure.

Professor Patrick Rossignol, FIGHT-HF coordinator, states: “So far, driven by a trialists’ approach, clinically actionable classifiers of heart failure are limited to ejection fraction, and chronic and acute heart failure. Taking advantage of our teams’ leadership in several on-going major programmes (EU FP7s, Trials, ANR, PHRC), FIGHT-HF calls for a disruptive strategic approach. Moreover, in collaboration with EdgeLeap, we aim at applying a network-based data science approach to our data-intensive programmes to translate abundant and diverse data into relevant, meaningful and actionable information for improving effectiveness and efficiency of care and disease management. Our ultimate aim is to generate new heart failure classifiers, and to improve patient outcomes.”

Marijana Radonjic, Chief Executive Officer of EdgeLeap stresses: “The game-changing feature of FIGHT-HF is its focus on interdisciplinary effort of clinicians and data scientists to move the field forward. In times of increasingly datafied healthcare, this synergy is a prerequisite for an effective translation of research into improved patient care. The cross-disciplinary excellence of the consortium partners holds potential for a big leap forward in treating heart failure patients and we are excited to reinforce the team with our data science expertise”.

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The program will combine patient cohort data from over 80,000 patients which will be integrated and analysed, capturing a wide range of information – from metadata and medication history, to molecular data from blood and urine, functional imaging and analysis of electrocardiograms. This data will be integrated, mined, and linked to mechanistic knowledge from preclinical studies and biomedical literature using cutting-edge graph database technology, semantic modelling and machine learning, to provide clinicians with actionable information.

Thomas Kelder, Chief Scientific Officer of EdgeLeap comments: “EdgeLeap will set up a central graph-based platform for capturing and mining of patient data throughout the entire program. We will use the Neo4j graph database to build a flexible and scalable data model which will seamlessly integrate with the diverse analytics expertise within the consortium. To tackle data sharing and patient privacy challenges, we will work towards a decentralized approach to allow analysis across different centres by using semantic web standards and virtualization technologies such as Docker”.

“Such an approach is ideal for us”, adds Marie-Dominique Devignes, a CNRS scientist at the LORIA (Laboratoire Lorrain de Recherche en Informatique et ses Applications). “We will use the graph-based platform to extract rich integrated datasets that feed into our data mining algorithms and knowledge discovery programs. Resulting insights will feed back into the platform for contextual and collaborative interpretation. No doubt that this platform will fill the gap between clinicians and computer scientists.”

The central graph-based platform implemented by EdgeLeap for FIGHT-HF is envisioned to become an instrumental component of clinical research infrastructures, enabling valorization of collected patient data through fast and accurate clinical interpretation, ultimately supporting highly personalized precision medicine goals.

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