

News release

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The German team initiates development of innovations in 3D printing technology**

Heidelberg, 8th of September 2016 – Inova DE GmbH has initiated the SUSS 3DP project, funded within the framework of the FABulous program. The project has begun September 2016 and it will improve the medical procedures through the use of 3D printers technology.

Surgery planning is the preoperative method of pre-visualising a surgical intervention, in order to predefine the surgical steps. It is essential in the neurosurgery, oral-maxillofacial surgery and tumour resections throughout the body. Surgery planning is also common practice for other planned surgical interventions as it enables the prior determination and modelling of the risk regions, seeking to obtain the best outcome with fewer risks for the patient. The basis for such planning steps is 3D image datasets acquired through a CT or MRI and commercially available software. As each patient anatomy differs considerably from each other, each case is individually analysed and visualized in both 2D slices and 3D reconstructions. This can be further enhanced by using a 3D printer to make exact replicas of organs that doctors can use to plan surgery, and even do practice operations beforehand. In the special case of tumour resection surgeries in the Cranio-Maxillofacial-region, such a handy tumour and bone model can make a huge difference in the surgery output and post-surgical recovery. By using the physical model of the organ to be operated is it possible to confer with colleagues for their input and examine the anatomy to achieve the best surgical outcome with less risk. Without the 3D model surgeons are less certain about the operation which leads to make naturally to making a larger incision that could possibly cause more pain and a longer recovery time for the patient. Using a 3D model removes some of the doubt of the surgical procedure.

We propose to design a medical software interface for the surgeon to segment and delineate the anatomy of the patient that should be printed out of the CT and MRI images, coupled with an on-line service for 3D printing of the organ that would be delivered to his installations within days.

About the team:

Inova DE GmbH is an R&D company specialized in medical software and hardware development. Inova develops software for multiple applications in medicine and healthcare, working close with medical doctors and end users to achieve the best results. With this transversal approach to the healthcare market we achieve the highest degree of usability and user satisfaction. Other projects in which Inova DE pursues include software for oncology, automated solutions for hospital logistics, Web platform for Ambient Assisted Living, Orthopaedic Robots and Image-guided surgery solutions. The Inova DE personnel are experts in medical software development following the appropriate norm (DIN EN 62304), while over five years of experience in the R&D field. Our service of Innovation Management offers small and medium sized companies additional support for managing innovation projects such as this project. Please find further information at www.inova-de.eu

Vitor Vieira (Gender: m) is a Doctorate in Medical Robotics through the University of Heidelberg (2010) and Electrotechnic Engineer by the Faculty of Engineering University of Porto (2005). He is experienced in image processing, technical and software development in particular in medical robotics and software. He has over five years of experience in the medical industry as Medical Software Development Manager, and safety inspector for the medical device manufacturer Precisis AG. During his PhD with the medical University of Heidelberg, he worked closely with surgeons at the Cranio-Maxillo-Facial-Surgery department, where he obtained an extraordinary view into the daily work of surgeons and their needs. He works full-time for the company with sole and full commitment to address users' demands. This innovation project is in line with his personal ambitions as it brings a direct added value to the medical community and his former colleagues. His expertise both in medical software development and user requirements analysis are valuable to engage the stakeholders involved in this project.

His personal involvement in several past EU and national research projects is visible on: SPARTA (Software Platform for Adaptive Multimodal Radio and Particle Therapy with Autarkic Extendibility)- BMBF; ASCAS (Automated Seed-Catheter Assembly System) - Eurostars; iDeepBrain- ZIM; AssRob Tool Instrumentor - Echord; Assistant Robot- ZIM; Compusurge – FP7.

Isabel Boldt (Gender: f) is a BSc in Management and Information Systems by University Portucalense Infante D. Henrique (2008). She is experienced in requirements analysis, software

design, software tests, user training and helpdesk. She has two years of experience in the bank industry as IT Consultant and five years in medical projects as a researcher. She also worked on a research project aimed to contribute to the improvement of health data availability at the point of care (OPTIM - Optimizing Information Systems for healthcare improving Graphical User Interface and Storage Management through Machine Learning techniques on user logs data). During her two years in the project she gained useful insight into the medical user field and their necessities. In this collaboration she closely worked with medical doctors making software tests, user training and helpdesk with the goal of integrating all the existing medical software with the hospital information system (HIS). It was later implemented in several hospitals of northern area of Portugal.

On-going projects of Inova team include the Eurostars CAST (E! 10291), a wearable t-shirt for chronic cardiac patients coupled with a telemedicine service solution. The Inova DE GmbH team will develop an on-line cloud infrastructure to collect the ECG and other biometrical data, analyse it, and present it to cardiologist in a seamless on-line interface.