

Partner Letter for NCP Network

The **Control of Networked Systems** research group at the University of Klagenfurt is looking to join a suitable consortium targeting RIA or IA calls in the Horizon Europe Program.

Partner Description

The "Control of Networked Systems" research group seeks to push the current limits in AI supported state estimation, cooperative visual perception, and multi-modal sensor fusion for autonomous and networked systems. Our research activities cover control theory, state estimation and motion planning, modelling of dynamic systems, numerical simulation, and robot automation in multi-agent scenarios.

Further information can be found at: <https://sst.aau.at/cns>,
<https://www.linkedin.com/company/control-of-networked-systems>

Potential contribution to the project

We have been investigating AI-based, dynamic, multi-modal localization of surgical tools and target anatomy within the patient in interventional radiology. A potential clinical use case are percutaneous interventions, such as tumor biopsies or ablations. Since data paucity is a major bottleneck in developing successful AI-based solutions for interventional radiology, we have been focusing on automated generation of synthetic training data based on available 3D pre-operative data of a potentially different imaging modality. An important, currently open research question is the exploitation of patient-specific, annotated pre-operative data for streamlined training and implementation of AI models that can be successfully deployed for the intervention. The EHDS presents a possible pathway for this: the availability of large-scale, accessible data would allow the streamlined creation of high-quality, pre-trained AI models for specific clinical interventions that can be fine-tuned, if needed, with patient-specific data with the goal to obtain robust, and highly accurate localization models for surgical tools and target anatomy. Thus, our research effort within the consortium could address two goals: to investigate potential use cases and identify potential bottlenecks and gaps for AI-based applications using EHDS data sources.

Prior experience with EU projects

We are a scientific consortium partner in an ongoing Horizon 2020 research project "BugWright 2" (<https://www.bugwright2.eu>, grant agreement No. 871260).

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