



Intraoperative 3D Augmented Reality Imaging and Navigation Technology

The technology behind ClarifEye Augmented Reality Surgical Navigation is an innovative pioneer in the industry. It represents the world's first solution for advancing minimally invasive spine therapy procedures in a hybrid operating room.

The procedure is a combination of detailed two- and three-dimensional visualisations that, when combined with 3D augmented reality, provide the operating surgeon with live visual feedback to optimise the procedure and the placement of pedicle screws.

The system consists of an operating table, a motorised flat detector with four high-resolution cameras integrated into a C-arm. The cameras are used for augmented reality navigation and are able to automatically and non-invasively detect patient markers. Furthermore, the C-arm allows 3D conebeam CT scans for planning and confirming the exact position of the pedicle screws. The vertebrae and the corresponding pedicles are automatically segmented on the planning scan. The surgeon then only needs to determine the optimal screw path through the vertebra and screw dimensions. The intraoperative CT and the planned screw placement paths are added to the video images of the surgical field. The screws are then navigated to the desired location by displaying them on a medical monitor.

The solution is fully integrated with Philips' image-guided therapy platform Azurion, enabling an efficient workflow with intra-procedural navigation and control for accurate screw placement. This reduces the need for post-operative CT or X-ray imaging.

INNOVATIVE TECHNOLOGICAL APPROACH

- ◇ **Company:**
Koninklijke Philips N.V.
- ◇ **Product:**
ClarifEye
- ◇ **Field of application:**
minimally invasive Spine therapy
- ◇ **Advantages:**
Imaging & navigation in one

improved workflow through non-invasive invasive patient tracking

Live AR needle guidance for higher precision
- ◇ **Website**
<https://www.philips.de/healthcare>

Extended Reality is rapidly establishing itself in a wide variety of medical specialties.

Are you interested in further areas of application and technologies in the context of extended reality? Then you should take a look at our arcoro INNOVATIONS on the topic of „Extended Reality - VR, AR, MR in Medicine“! In addition to exciting technologies and gamechangers in the industry, you will also find interviews with experts and the results of an international market survey.

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