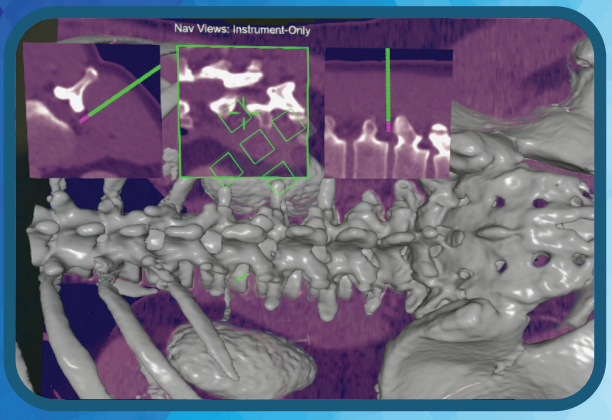
Augmented Reality Surgical Navigation



VisAR

VisAR is a next generation surgical navigation system for precision guided intraoperative stereotactic spinal surgery. It provides the precision of a robot, the portability of a stethoscope, and the versatility of human-powered intelligence. VisAR projects a patient's imaging data into a 2D or 3D stereoscopic image which is visible through an optical visor and superimposed onto the patient with millimeter accuracy.

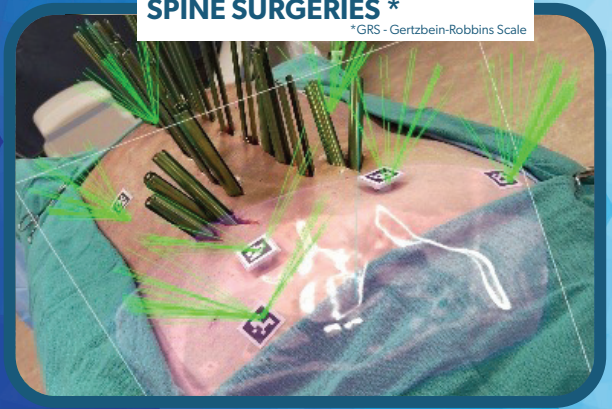
*VisAR is 510(k) cleared for its intended use

VisAR is like a surgical GPS providing a roadmap to guide the surgeon through simple and complex surgeries.

"The majority of pedicle screws placed today are done with blind technique, or at best with limited imaging. Reasons include the cost, complexity, additional OR time, and /or footprint required to do intraoperative pedicle screw guidance with current technology. However, navigation can clearly improve outcomes. VisAR has been shown to have a 96% success rate for both MISS and Open cases.[1]"

<2mm
PRECISION

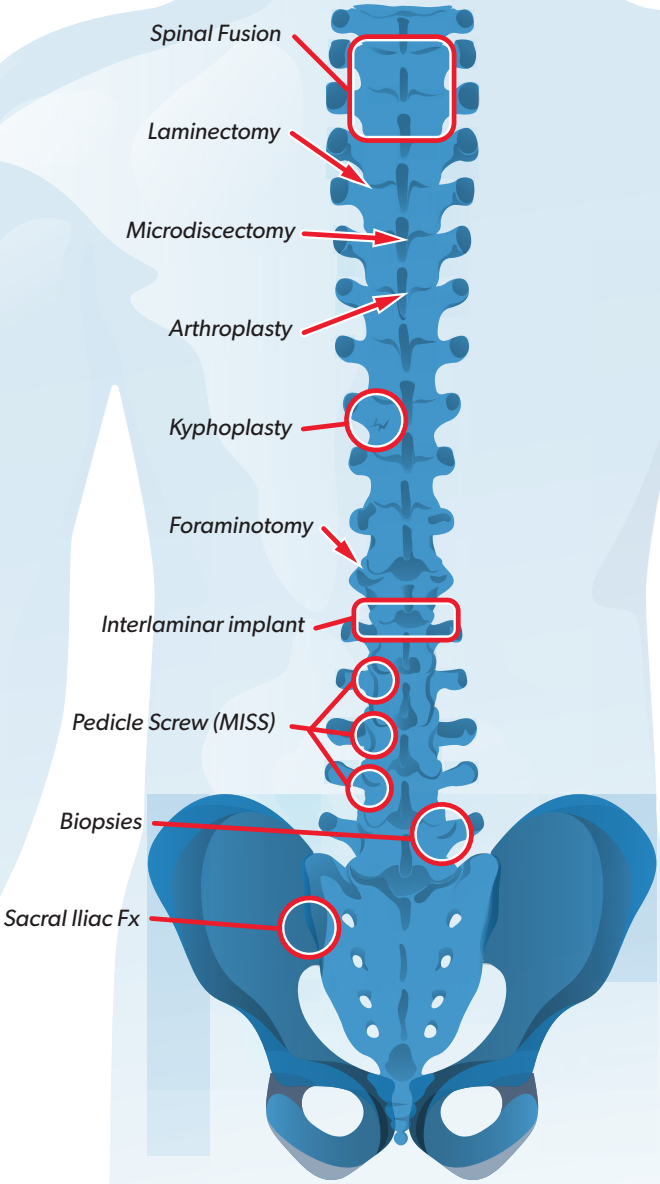
96%
ACCURACY FOR BOTH OPEN AND MINIMALLY INVASIVE SPINE SURGERIES *
*GRS - Gertzbein-Robbins Scale



Stereotactic Spine Surgical Procedures Using Augmented Reality

End-to-End Solution

- Precise instrument tracking (<2mm) accuracy
- Integrated navigational targeting system
- Scalable to multiple ORs when using the enterprise system
- Augments the surgeon's skill by seeing the patient's anatomy
- Intraoperative immersive viewing
- Real-time 3D reconstruction and segmentation
- Bidirectional image management
- Reduces set up time when compared to surgical robots[1]
- Intuitive system reduces the need for a dedicated support team inside the OR
- Reduces learning curve and improves accuracy when compared to surgical robots[2]
- Improves patient safety with precision surgery when compared to freehand[3]
- Easily transported between the ORs
- Lifetime software updates are included



3D Pre-operative and Intraoperative Planning[4]

- Allows for pre-operative planning, tracker and tag placement, virtual landmark registration, and instrument planning.

Instant Case Retrieval

- Image datalink with series, annotations, logins, users, URL, and passwords encrypted into a QR code that instantly retrieves patient case for hands-free operation.

VisAR Single Use Surgical kit
S-SK-GEN

1 Brent Felix, MD, Seyed Babak Kalantar, MD, Bradley Moatz, MD, et al. Augmented reality spine surgery navigation: Increasing pedicle screw insertion accuracy for both open and minimally invasive spine surgeries. SPINE Volume 47, Number 12, pp 865-872. 2022

2 Bounajem, M. T., Cameron, B., Sorensen, K., Parr, R., Gibby, W., Prashant, G., Evans, J. J., & Karsy, M. (2023, April). Improved accuracy and lowered learning curve of ventricular targeting using augmented reality—Phantom and Cadaveric Model Testing. Neurosurgery, 92(4):p 884-891.

3 Sarah Murthi, MD and Amitabh Varshney. How augmented reality will make surgery safer. Harvard Business Review. 20 March 2018.

4 Benjamin Laguna, Kristin Livingston, Ravinder Brar, et al. Assessing the value of a novel augmented reality application for presurgical planning in adolescent elbow fractures. Frontiers in Virtual Reality, Volume 1. November 2020.

Learn more at
www.novarad.net/visar

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