Spine & Trauma Navigation

Rewriting every backstory

Guidance that impacts outcomes. Spine & Trauma Navigation delivers real-time guidance in the O.R., supporting accuracy, safety and interoperability throughout your procedures. With our open platform, we're enabling seamless integration of instruments and imaging systems while optimizing workflows across a broad data-driven ecosystem.

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01.
Surgical benefits

Key benefits

1 Increasing accuracy decreasing revisions

Achieve higher accuracy than conventional surgical techniques and reduce revisions during implant placement.

Transfer your preoperative plans seamlessly to the O.R. where segmented anatomical structures and planned implants are ready for intraoperative use.

Key benefits

2

Minimizing radiation maximizing visualization

Experience smart guidance that maximizes visualization in the sterile field while minimizing x-ray exposure for you and your team.

Create a secure environment in the O.R. where protection and accuracy go hand in hand throughout the procedure.

Key benefits

3 Empowering choice delivering impact

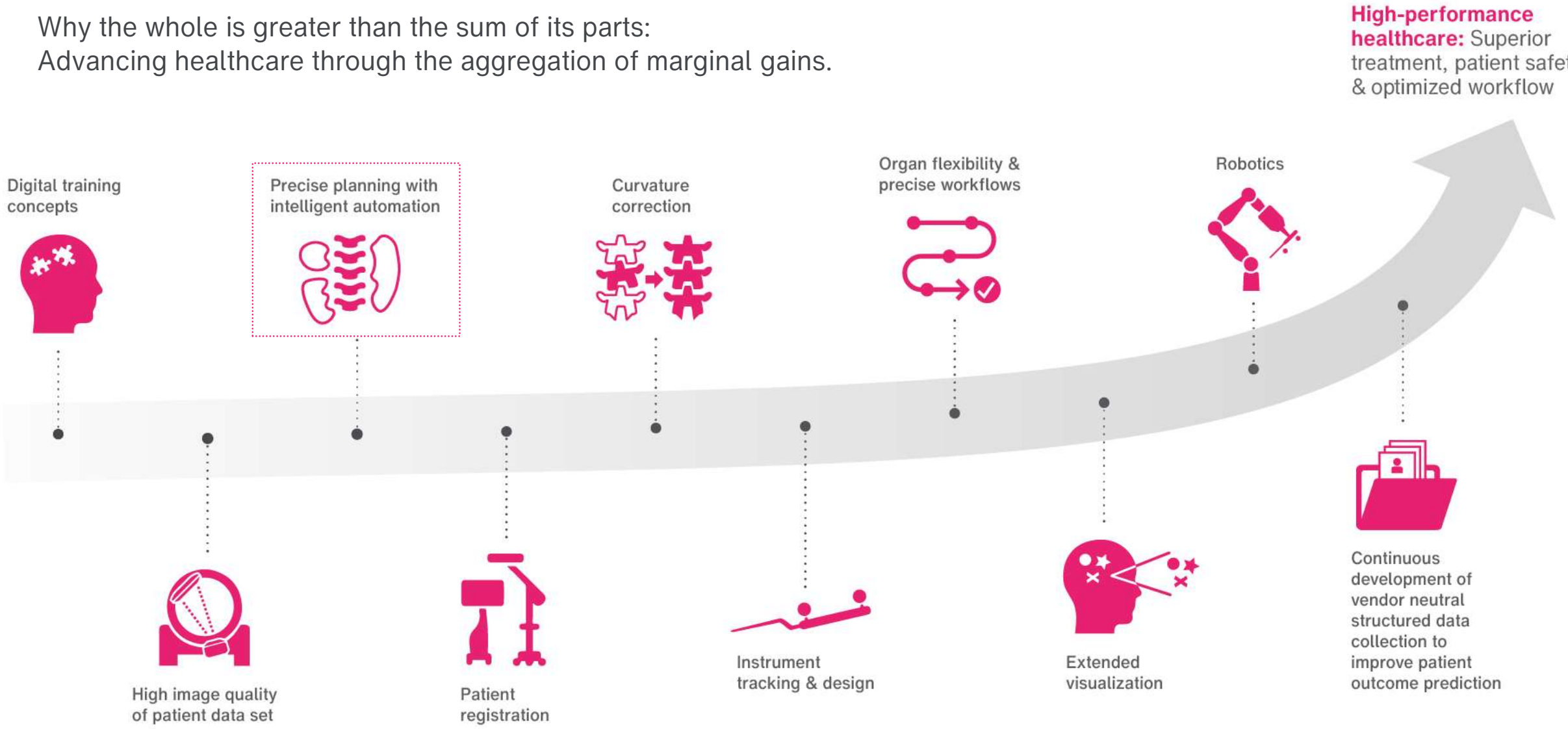
Choose the instruments and imaging modalities best suited for each patient and procedure.

Connect effortlessly to a broader, data-driven ecosystem—planning, robotics, mobile imaging, mixed reality, microscopy and neuromonitoring—supporting interoperability and efficiency.

02.
Clinical workflow

Every step matters

Why the whole is greater than the sum of its parts:
Advancing healthcare through the aggregation of marginal gains.



Choose your preferred registration method

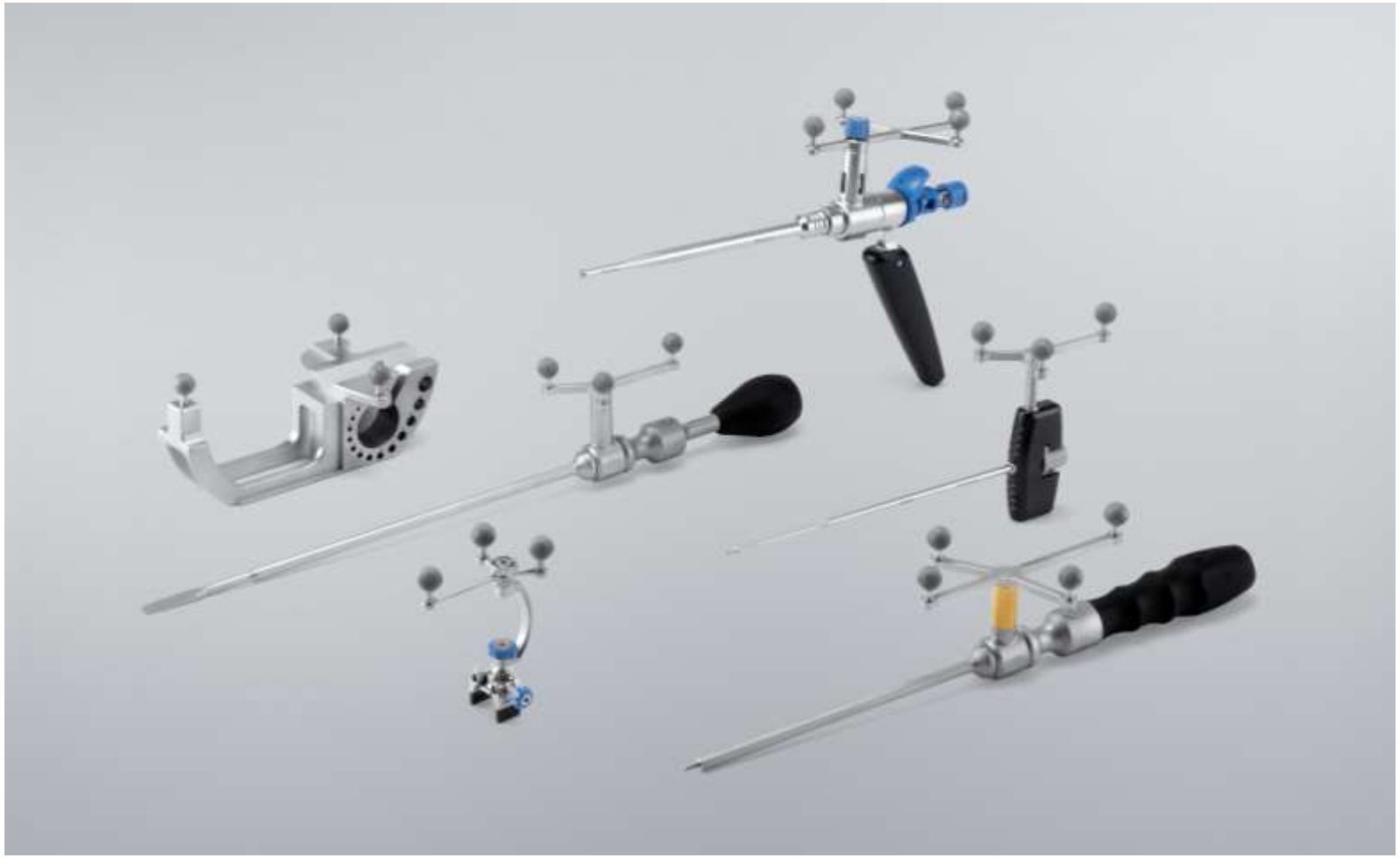
- Experience the freedom to choose the registration method that fits your case, your workflow and your preferences.
- Surface Matching gives you the option to register your patient in open cases using preoperative CT and enables a fully radiation free workflow using synthetic CT*.
- Integrate any of your existing image acquisition systems or our Loop-X Mobile Imaging Robot, supporting a standardized and reliable workflow for automatic image registration.

*BoneMRI by MRIguidance

Bring preoperative data into the O.R.

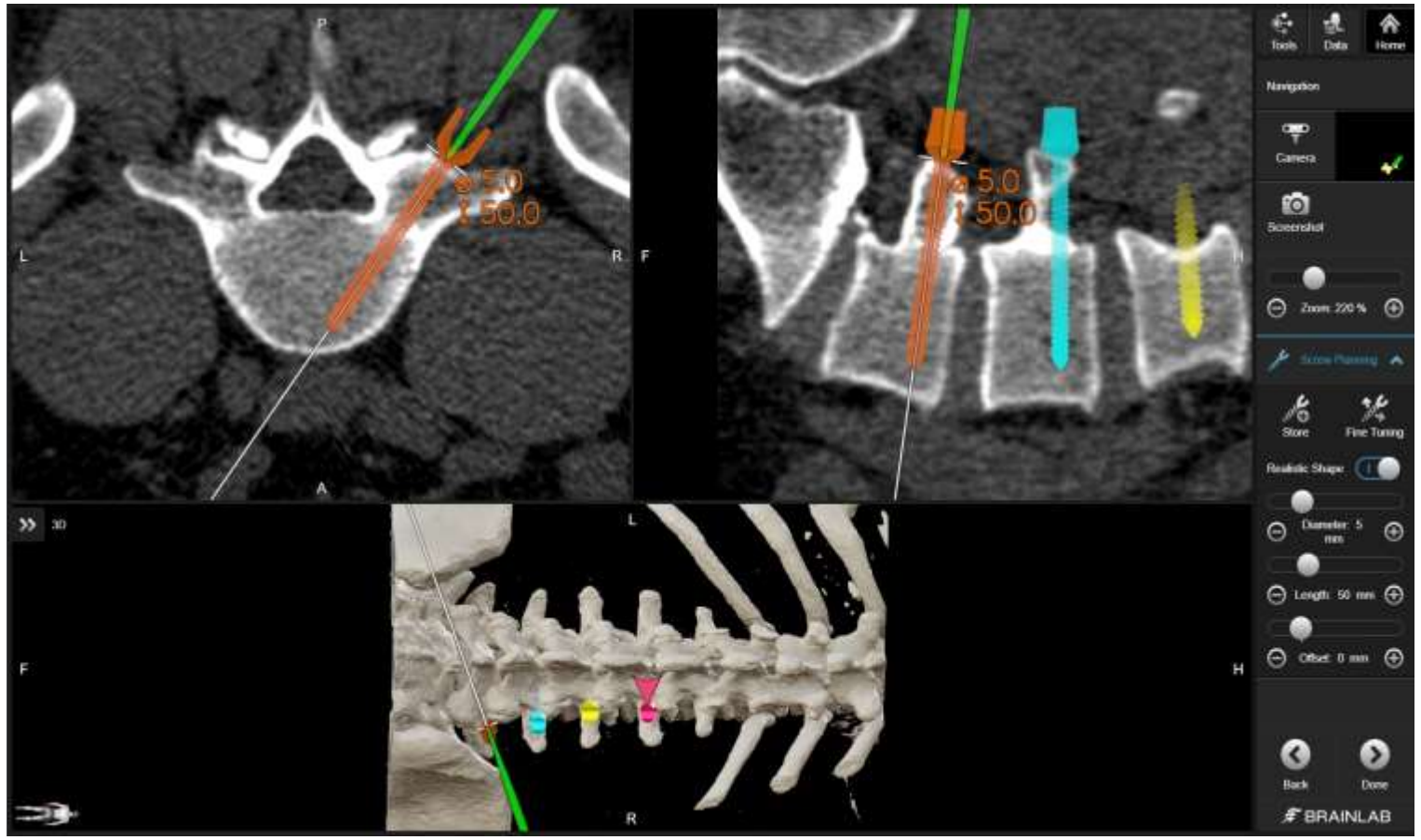
- Correct variations in spine curvature that occur due to preoperative imaging in the supine position and intraoperative imaging in the prone position.
- Elements Curvature Correction Spine elastically fuses preoperative MR and CT, even when using multilevel iCT and cone beam CT scans.
- Achieve the confidence that your preoperative implant plan and soft tissue information are up to date in the O.R.

Use your instruments of choice



- Use the instruments that are best for each patient and case with our open platform solution.
- Experience flexibility with pre-calibrated Brainlab and partner instruments or use our third-party instrument adapter clamp to navigate rigid instruments such as endoscopes.
- Create personalized favorite instrument groups for different users and procedures with Instrument Setup Software Spine, allowing a tailored experience and convenient instrument management.

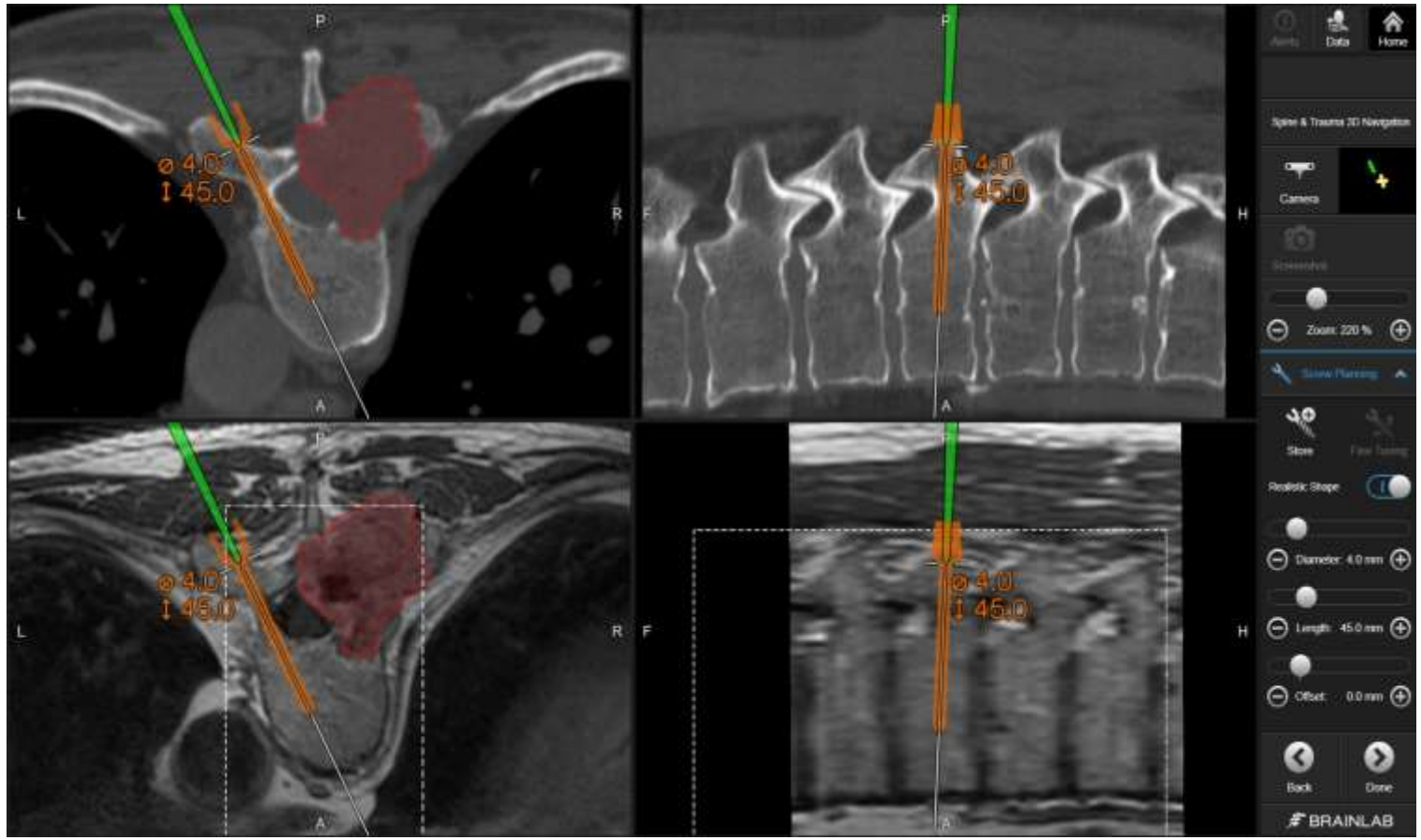
Navigate efficiently to your desired result



- Navigate using 3D scans (CT, MR or synthetic CT*), 2D images with Loop-X imaging robot and planning data at all stages of surgery—from incision planning to implant placement.
- Empower accurate and confident navigation of implants and instruments by gaining additional anatomical context with inline, 3D, DRR, probe's eye and autopilot views.

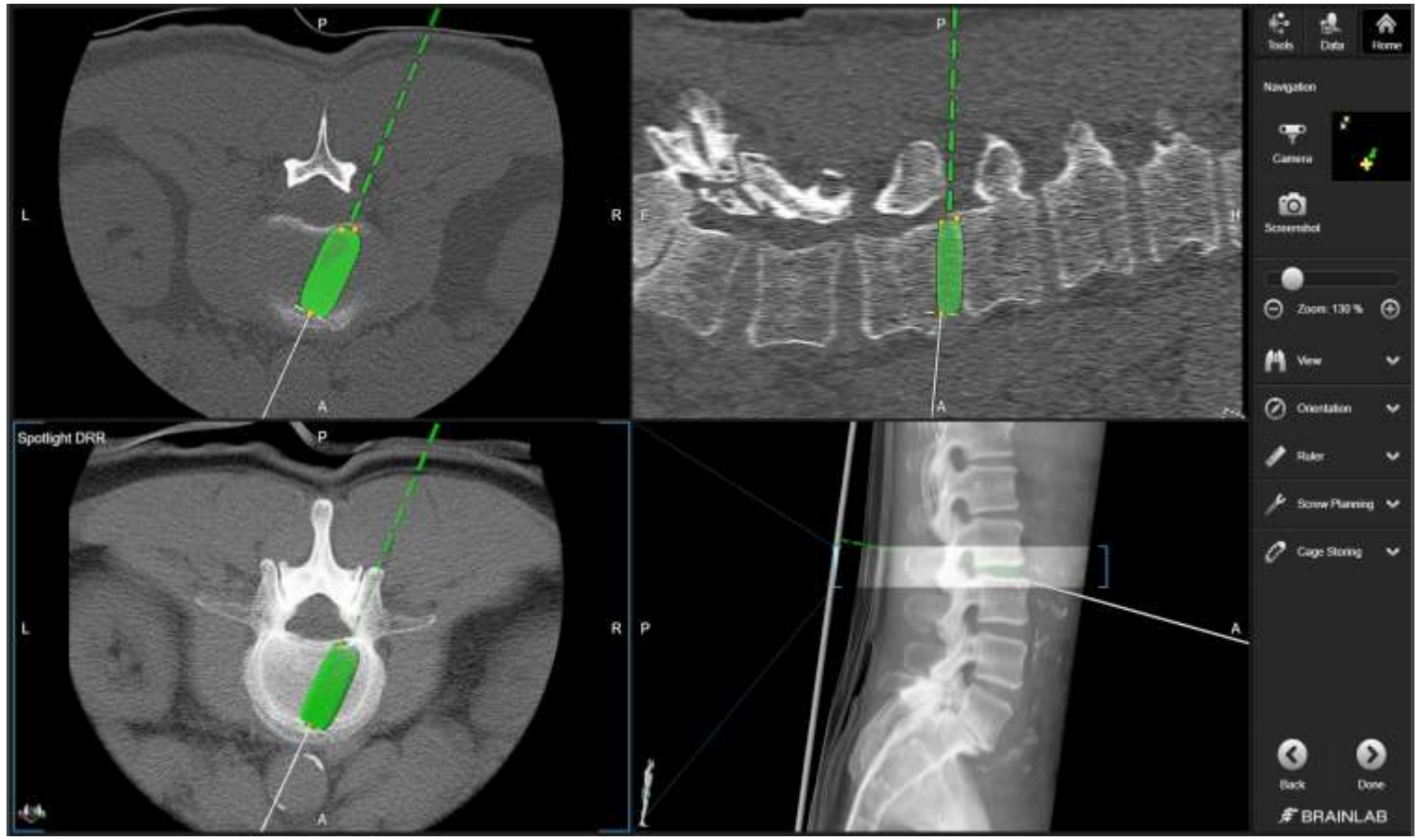
*BoneMRI by MRIguidance

Plan and update during surgery



- Enable on-the-go screw planning and preoperative plan updates with straightforward, intraoperative screw trajectory planning including length, diameter and a ruler with instrument tip extension.
- Adapt and achieve optimal screw placement by updating the screw plan intraoperatively, even when anatomy or exposure differs from the preoperative plan.

Utilize intraoperative guidance for intuitive interbody navigation



- Optimize cage placement and prepare intervertebral disc space with interbody navigation.
- Enable accurate navigation of interbody cages from posterior and lateral approaches with quick calibration.
- Verify implant trajectory and positioning before final placement with real-time guidance.

Visualize rods in life size

- Mitigate scaling issues and intraoperative guesswork during rod bending by pre-planning the sagittal alignment with Elements Spine Planning.
- Benefit from a life-size, on-screen template to guide rod bending during the procedure using Spine & Trauma Navigation software.

Empower your surgical workflow with navigation at its core

- Connect every stage of your workflow seamlessly with Brainlab navigation.
- Take advantage of our open platform by integrating your existing instruments and imaging systems.
- Seamlessly connect with our broader ecosystem including preoperative planning software, imaging, robotics, mixed reality, microscopy and neuromonitoring.

03.
Facts & figures

Research that is shaping spine surgery innovation

Facts & figures

>96%

0 mm breach distance (Gertzbein-robbins Grade A)

of thoracic and lumbo-sacral transpedicular screws places with intraoperative CT navigation, and 98% within the safe zone (Gertzbein-Robbins Grade A+B).

Source: González-Vargas et al. (2022): Neurocirugia (English Edition), DOI: 10.1016/j.neucie.2021.01.002.

Reduction

in radiation exposure for the surgical team

with optimized workflows, including intraoperative imaging and spinal navigation, enabling them to leave the O.R. during scans[2].

Sources: Sargut et al. (2022): European Spine Journal, DOI: 10.1007/s00586-022-07268-x
Haida et al. (2024): Journal of Orthopaedic Surgery and Research, DOI: 10.1186/s13018-024-05044-9.

70%

reduction in odds of revision surgery

for misplaced pedicle screws after posterior thoracolumbar surgery using 3D fluoroscopic navigation versus fluoroscopy-based freehand technique.

Source: Fichtner et al. (2018): World Neurosurgery, DOI: 10.1016/j.wneu.2017.09.091.

[2]Odds ratio freehand vs. navigated: 3.35; 95% confidence interval, 1.8651-6.0028; p <0.01; inverted odds ratio for navigated vs. freehand (calculated): ~0.03.

04.
Discover more

Connect effortlessly to our broader ecosystem

Spine planning

Enable intuitive sagittal alignment correction with our patient-specific spine avatar for personalized planning.

Learn more

Surgical robotics

Facilitate accurate screw placement with Cirq® by automatically aligning to pre- or intraoperatively planned trajectories.

Learn more

Intraoperative imaging

Transform your surgery in 2D and 3D imaging with Loop-X, providing unprecedented positioning flexibility and autonomous movement.

Learn more

Microscope Navigation

Enrich your field of view with augmented reality by projecting patient-specific anatomical objects into the microscope oculars.

Learn more

Spine Mixed Reality Navigation

Experience extended reality support directly in the sterile field and benefit from enhanced visualization and optimized ergonomics.

Learn more

AVALANCHE® PLUS

Combine powerful monitoring and mapping functionalities with intuitive setup and ease of use for your spine procedures.

Learn more

More guidance, right where you need it

Patient Reference Portfolio

Discover our versatile Spine Patient Reference Portfolio.

Download now

Drill Guide

Guide spine and trauma surgery at every level with our navigated Drill Guide.

Download now

BoneMRI integration

Plan and perform navigated spine surgeries on synthetic CTs with BoneMRI by MRIguidance.

Download now

CIARTIC Move 3D C-arm integration

Integrate the Siemens Healthineers CIARTIC Move 3D C-arm with Brainlab Spine & Trauma Navigation.

Download now

brainlab.com