Interventional radiology and oncology

Upgrade your system workstation and applications, enhance your clinical practice

GE HealthCare

Interventional radiology and oncology upgrade: what added value for your practice?

Your daily practice sometimes involves complex procedures. You may encounter challenges when dealing with visualization, difficult needle navigation, repetitive acquisition, radiation dose and procedural time.

Consider upgrading your system with ASSIST[1], the comprehensive versatile suite to help address your main challenges and improve outcomes in embolization and percutaneous procedures.

All embolization procedures

Liver, prostate and pelvis embolizations involve complex vasculature and perfusion territory analysis leading to long procedures, high dose and contrast consumption with sub-optimal treatment in case of missed or off-target embolization.

Your upgraded solution: Embo ASSIST AI[1] with 3D CT HD[2]

AI-based augmented guidance solution designed to define optimal embolization strategies

Access to Automatic AI-based segmentation and in 1-click mode, simulate injection points and extract vessels. Use 3D models of pathways to navigate catheter and leverage digital zoom to limit dose. Visualize targeted vessels on 3D CT HD[2] directly from the interventional room to confirm catheter location before embolization.

Prostate
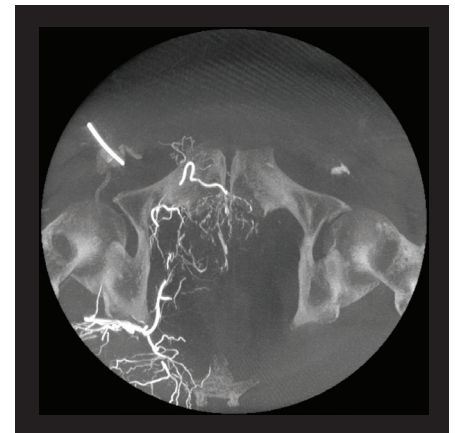
AI-based segmentation

Your win
Organ agnostic simulation of injection points, visualization of catheter location and embolization planning strategies

Your outcomes[3]	
Dose*	-27%
Fluoro time**	-11 minutes

> Embo ASSIST and other three-dimensional navigation tools generate a model, and I can think in my head, 'Yes, this is where the catheter should be and this is how we should get there'.
> Dr. Charles Nutting, DO FSIR Interventional Radiologist, Englewood, Colorado, United States
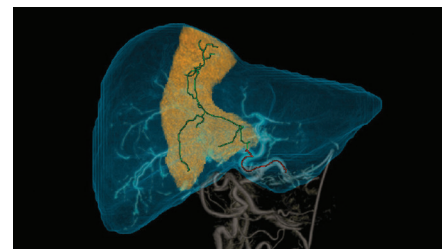
Liver embolization

Your upgraded solution: Liver ASSIST Virtual Parenchyma[4] with Motion Freeze[5]

Designed for liver tumor feeding vessels identification and for injection planning strategies

- 1-click segmentation of liver vasculature
- Real-time simulation of potential injection points
- AI-based real-time visualization of liver territory
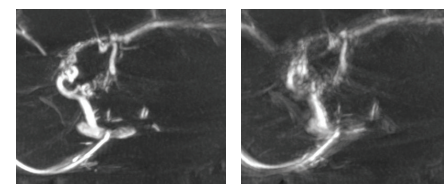- Involuntary breathing motion correction to avoid liver repeated 3D CT with Motion Freeze

Your win

Precise simulation of injection point and liver territory

Your outcomes

		Improved sensitivity in tumor feeding vessels identification
Technical success	95%[6]	
Procedural time	-11%[7]	
Mean number of DSA	-30%[7]	

Liver

AI-based liver territory visualization

With Motion Freeze   **Without Motion Freeze**

" Excellent prediction. May help identify optimal treatment strategy based on a single proximal CBCT, avoiding multiple unnecessary vessel catheterizations and selective acquisitions, reducing X-Ray exposure and contrast injection.
Prof. Thierry de Baère, Interventional Radiologist, Gustave Roussy Cancer Campus, Villejuif, France "

Percutaneous procedures

Biopsies and ablation procedures might be challenging and time-consuming to advance needles without impacting critical structures.

Your upgraded solution: Needle ASSIST[8] with integrated registration

**Planning and guidance for needle-based procedures**

A solution that helps define optimal entry points directly from the interventions and assess needle position with Stereo 3D.

Your win

Precise entry point and needle advancement

Avoid repeating multiple 3D CT

Your outcomes

Trajectories accuracy	> 2.5 mm[8a]
Dose reduction	98% full CBCT workflow[8b]
Time reduction	< 1 min workflow[8c]
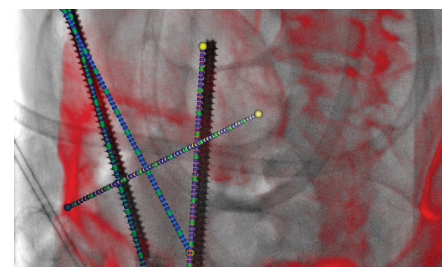
" Needle ASSIST allows me to successfully and safely target lesions for ablation in locations which are difficult to reach with traditional axial CT imaging.
Dr. Brian Kouri
Interventional Radiologist, Wake Forest Baptist Academic Medical Center, Winston-Salem, North Carolina, United States "

Stay technologically and clinically current with access the latest applications

Select the relevant upgrades for your practice at the forefront of technology

IGS workstation upgrade

AW workstation
Get access to the full ASSIST suite at table side

You buy
- Operating system hardware and software upgrade
- Volume Viewer Innova Enhanced
- Reconstruction engine evolution
- Applications refresh

You get
- Intuitive user interface
- Simplified workflow
- Increased storage capability
- Cybersecurity risk reduction
- 20% faster processing[12]

+

Interventional radiology and oncology imaging upgrade
New ASSIST, 2D, 3D applications

Endovascular procedures
- Embo ASSIST AI
- Vessel ASSIST
- 3D CT HD
- Digital Pen

Interventional oncology procedures
- Liver ASSIST Virtual Parenchyma
- Embo ASSIST AI
- 3D CT HD
- INTERACT Active Tracker
- Motion Freeze
- Digital Pen

Percutaneous procedures
- Needle ASSIST
- 3D CT HD
- Integrated registration

Peripheral procedures
- Vessel ASSIST
- InnovaBreeze
- Digital Pen

2D and 3D applications to augment your imaging outcomes

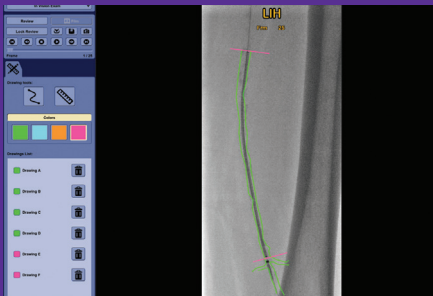## Boost your clinical practice and confidence with cutting-edge apps

Area of interest	Bolus chasing	Automatic fusion

Digital Pen[9]

Highlights area of interest on 2D images

InnovaBreeze[10]

Vascular flow, lesion severity assessment

INTERACT Active Tracker[11]

Fusion and alignment of ultrasound to CT, MR, PET-CT and 3D CT volumes

Your win
- Landmarks in the moving images based on table and gantry movements
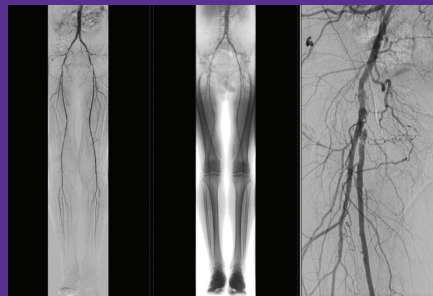- A pen integrated at table side for your comfort and ease of use

Your win
- Automatic mask acquisitions with table repositioning for the injected acquisition
- Table speed control based on bolus arrival with real-time display on the screen
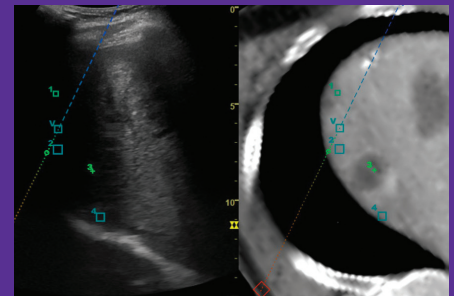
Your win
- Confidence: enhanced visualization of lesions/surrounding anatomies + precise entry point and needle advancement
- Time saving: freed-up CT scan time
- Facilitated procedures: setup and use of multimodality seamless fusion accessible to anyone

> The fusion is accurate so I can confidently use preoperative CT, MR, PET or CBCT fused to live ultrasound to guide ablation probe placement, which may significantly reduce radiation dose to the patient and to the operators. I don't have to see the lesion with ultrasound.
>
> Using ultrasound with an automatic multi-modality fusion solution allows me to perform ablations in the angio suite where I can approach the lesions with more complex angulations than in a CT or MR room.

Dr. Gordon McLennan
CEO, Interventional Innovations
Consulting LLC,
Denver, Colorado, United States
User of INTERACT Active Tracker Fusion

Disclaimers:

*   Dose Reduction (AIR Kerma) to 642 mGy , by 27% on a sample of 131 procedures. Results are significantly different.

**   Fluoro time Reduction (min) of 11 minutes , by 44% on a sample of 131 procedures. Results are significantly different.

1.   Embo ASSIST AI solution includes FlightPlan for Embolization with AI Segmentation option and requires AW workstation with Volume Viewer, Volume Viewer Innova, Vision 2, VesselIQ Xpress, Autobone Xpress. These applications are sold separately. FlightPlan for Embolization with AI Segmentation may not be available in all countries.

2.   3D CT HD is an option sold separately. Includes 3DXR. Requires AW workstation and Volume Viewer.

3.   Barral M, et al. J Vasc Interv Radiol. 2024 Mar;35(3):409-415.

4.   Liver ASSIST Virtual Parenchyma solution includes Hepatic VCAR and Flight Plan for Liver with Parenchyma Analysis option and requires AW workstation with Volume Viewer, Volume Viewer Innova, Vision 2, VesselIQ Xpress, Autobone Xpress. These applications are sold separately. FlightPlan for Liver with Parenchyma Analysis option may not be available for sale in all countries. Please refer to your sales representative for more information. Liver ASSIST Virtual Parenchyma is designed to attain the same performance outcomes of FlightPlan for Liver. The above Liver ASSIST performance outcomes reflect the results of three published journal articles (a,b,c) that used previous version of FlightPlan for Liver software. The results of these published studies do not necessarily represent individual performance of FlightPlan for Liver. a) Cone Beam Computed Tomography (CBCT) in the Field of Interventional Oncology of the Liver – Bapst, et al. Cardiovasc Intervent Radiol. 2016. b) Tracking Navigation Imaging of Transcatheter Arterial Chemoembolization for Hepatocellular Carcinoma Using Three-Dimensional Cone-Beam CT Angiography – Minami, et al. Liver Cancer. 2014. c) Clinical utility and limitations of tumor-feeder detection software for liver cancer embolization. Iwazawa, et al. European Journal of Radiology. 2013.

5.   The improvement related to Motion Freeze depends on the acquisition conditions, table position, patient, type of motion, anatomical location and clinical practice. Motion Freeze is an optional feature of 3DXR (part of GE HealthCare Interventional X-Rays system Allia™ IGS 5, Innova™ IGS 6 and Allia™ IGS 7 or Allia™ IGS 7OR). Sold separately.

6.   Dioguardi Burgio M, Tselikas L, McLennan G, Deschamps F, Karuppasamy K, Levitin A, Rebet A, Coeuret S, Jugnon V, de Baere T, Gill A. Semiautomatic Cone Beam Computed Tomography Virtual Hepatic Volumetry for Intra-Arterial Therapies. J Vasc Interv Radiol. 2023 May;34(5):790-798. doi: 10.1016/j.jvir.2022.12.035. Epub 2022 Dec 20. PMID: 36563933.

7.   Iwazawa J, et al. Radiol Res Pract. 2013;2013:580839.

8.   Needle ASSIST solution includes TrackVision 2, Stereo 3D and requires AW workstation with Volume Viewer, Volume Viewer Innova. These applications are sold separately.

8a.   The accuracy is defined to be the perpendicular distance between the needle tip in the Stereo 3D image and the shaft of the needle in the CBCT image. This accuracy does not reflect the error in the direction parallel to the needle shaft. The perpendicular accuracy was determined by engineering analysis using rigid phantom data. This idealized accuracy of the Stereo 3D reconstruction is obtained with the 2 fluoroscopic images taken at optimal angulation and without table motion at any step of the reconstruction procedure.

8b.   Based on the dose of the procedure step needed for needle visualization using a CBCT acquisition vs. a Stereo 3D process. Full 3D anatomic information is provided with the CBCT acquisition, while the Stereo 3D process provides specific information for 3D needle visualization. In both cases, the needle visualization is next used to assess its location. The stated dose reduction does not reflect the entire interventional procedure, but rather to a specific step in the procedure. The dose for the CBCT acquisition is from typical exposure settings (Innova CT 40°/s, 30fps, IQ Standard, Normal, Nominal FOV). The dose from the Stereo 3D process is from three spatially separated, 2-seconds fluoroscopic acquisitions, with typical exposure settings (3.75 fps, IQ Standard, Normal, Max Dose Reduction, Nominal FOV). The dose data for all acquisitions are from the Air Kerma per IEC 60601-2-43 conditions, provided in the interventional X-Ray user manual. In clinical practice, the use of Stereo 3D may reduce patient radiation dose depending on the clinical task, patient size, anatomical location and clinical practice.

8c.   Time to reconstruct the object may vary depending on user experience and case complexity.

9.   Digital Pen option requires AW workstation with Volume Viewer, Volume Viewer Innova and Volume Viewer Innova Enhanced, HeartVision 2 or Vision 2. These applications are sold separately.

10.   InnovaBreeze runs on IGS. AW workstation is required if Advantage Paste is used.

11.   INTERACT Active Tracker may not be available in all markets. Is an optional feature of 3DXR (part of GE HealthCare Interventional X-Rays system Allia IGS 5, Innova IGS 6 and Allia IGS 7 or Allia IGS 7OR). This feature supports only one 'Active Tracker' type: Omni TRAXTM Active Patient Tracker (sold separately by CIVCO). Requires a LOGIC E10 system into the Ge HealthCare angio suite. 3DXR may not be available in all markets. Refer to your sales representative.

12.   AW workstation - As compared to previous AW system. Based on CPU specifications, memory speeds and PassMark® Software CPU Performance Test benchmark results (www.cpubenchmark. net/high_end_cpus.html). Not all applications may realize this improvement.

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