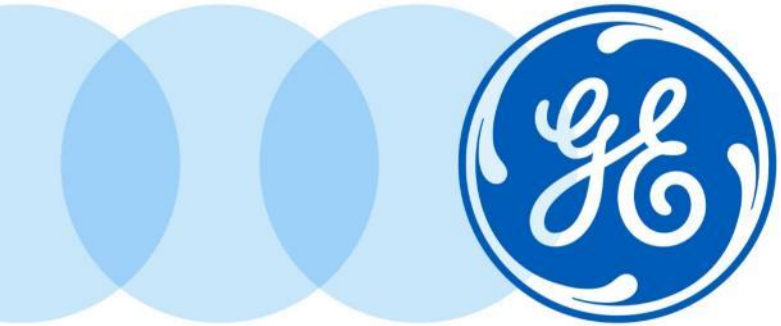


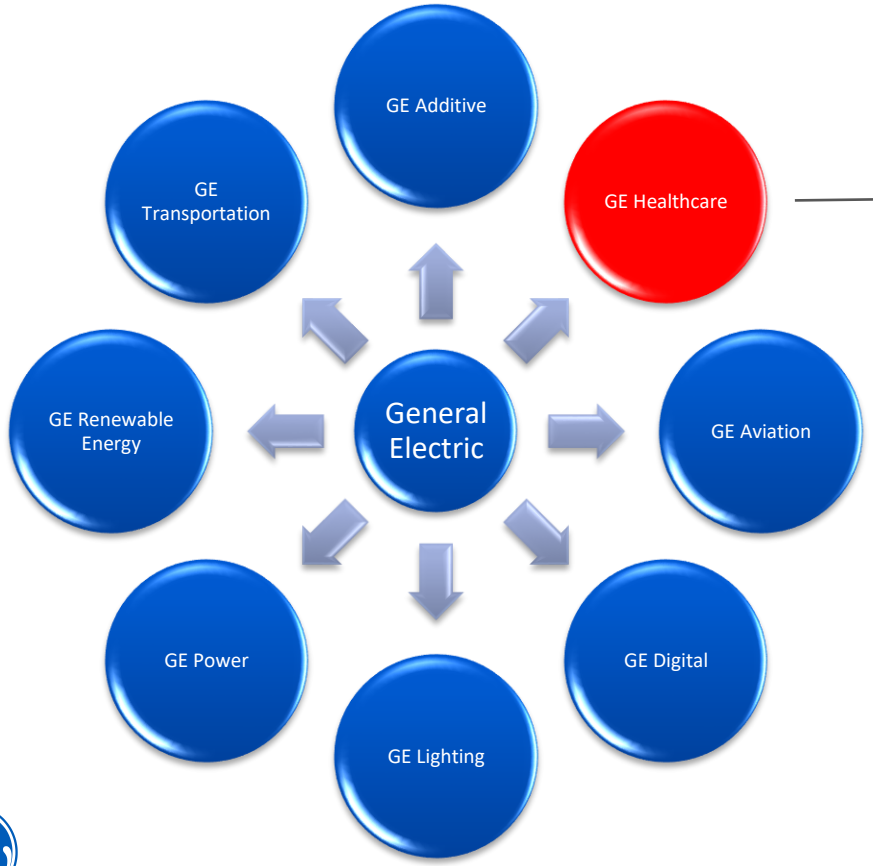
GE Healthcare – Ultrasound

Robot PACA 2018 – 25/26 June 2018

Contact: jean.bulte@ge.com

Imagination at work

GE Healthcare



Computed Tomography

Patient Monitoring

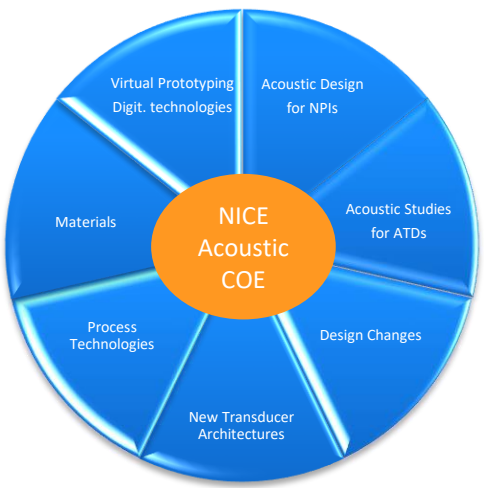
Surgical Imaging

...

Ultrasound Imaging

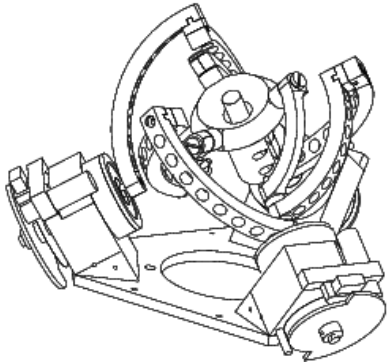
GE Ultrasound

Cat #	Main Applications	Description	Footprint	Biopsy Guide	Scanner Frequency Range	Field of View	Depth of Field
Sector							
H45041DL	Cardiac, Pediatric, Abdominal, Fetal, Adult Cephalic	Phased Array	18 x 24 mm	Multi-angle disposable, with a reusable bracket	1.3 - 4.0 MHz	120°	30 cm
H44901AG	Cardiac, Pediatric, Abdominal, Fetal, Adult Cephalic	XDclear™ Active Matix Single Crystal Phased Array	18 x 27 mm	Multi-angle disposable, with a reusable bracket	1.5 - 4.6 MHz	120°	30 cm
H45021RP	Pediatric, Neonatal Head, Fetal, Abdomen	Phased Array	17 x 24 mm		2.0 - 7.0 MHz	120°	30 cm
H44901AB	Pediatric, Abdomen, Neonatal Head	Phased Array	13 x 18 mm		4.5 - 12.0 MHz	90°	14 cm



- Diagnostic ultrasound with Doppler physics and instrumentation
- D-Series transducer technologies i.e. single crystal and matrix array
- Stress echocardiography configuration and acquisition tips
- Current and advanced technologies; 2D and color imaging optimization, tissue Doppler, 2D strain/speckle tracking and Automated Function Imaging (AFI)
- 3D/4D Volume cardiovascular ultrasound technology; imaging acquisition, navigation and quantification tools
- Vascular and shared services presets and transducers overview
- 7-8 hours of hands-on scanning in small groups

Ultrasound / Robotics



Need : Adaptive probe positioning

Applications :

Probe characterization
(test bench automatization)

Surgical imaging
(intervent. image guided systems)

Stress effort
(echocardiography)

Advantages :

- Precision : needed for Image Quality in terms of probe positioning/pressure
- Risk mitigation : X-Ray exposure of surgeon (multi-modality imaging)
- Potential coupling with other medical devices
- Robustness and reproducibility

Collaboration with INRIA

(partners: J.P. Merlet, M.Sermesant)

Scope : Adaptive probe positioning

Application : Stress echocardiography

Objective : Probe orientation/contact pressure

Challenges :

- Moving organ/patient
- Imaging through intercostal window
- Contact pressure is critical for Image Quality
- Guarantee the safety of the procedure
- Compatibility with other medical devices

State :

- Intern with INRIA robotics team Hephaistos