ARTINESS®

THE NEW WAY TO LOOK INSIDE

Patient-specific 3D holographic platform for planning and navigation in structural heart interventions

Filippo Piatti

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Company&Team

ARTINESS

C-level

Filippo Piatti, PhD
CEO & co-founder
Bioengineer at Politecnico di Milano
Research at University of Oxford, Stony Brook University

Giovanni Rossini, PhD
COO & co-founder
Bioengineer at Politecnico di Milano
Research at Sorbonne Université Paris, University of Texas at Austin

Omar Pappalardo, PhD
CTO & co-founder
Bioengineer at Politecnico di Milano
Research at Mayo Clinic, Leiden University Medical Center

Offices

- EU (HQ)
  Milano, Viale Cassala 57, 20143
- USA (partner corp)
  New York, 745 5th Ave, NY 10151

Team: 12 FTE

S. Pozzi, PhD
Research & Clinical activities manager

V. Russo
Data protection & cybersecurity

J. Monti
Training & client success manager

M. Pasquali
Product & Regulatory manager

C. Grullero
Quality manager

Advisors / Consultants

C. Fontana, MBA
Senior advisor with more than 20 years in Medtech strategic and m&a

A. Radaelli
Senior advisor with more than 15 years in Medtech technology and business development

D. Shockley
Founder and CEO of Movair, more than 30 years in USA medtech commercialization.

IP protection and corporate law

Regulatory and reimbursement

Company purpose

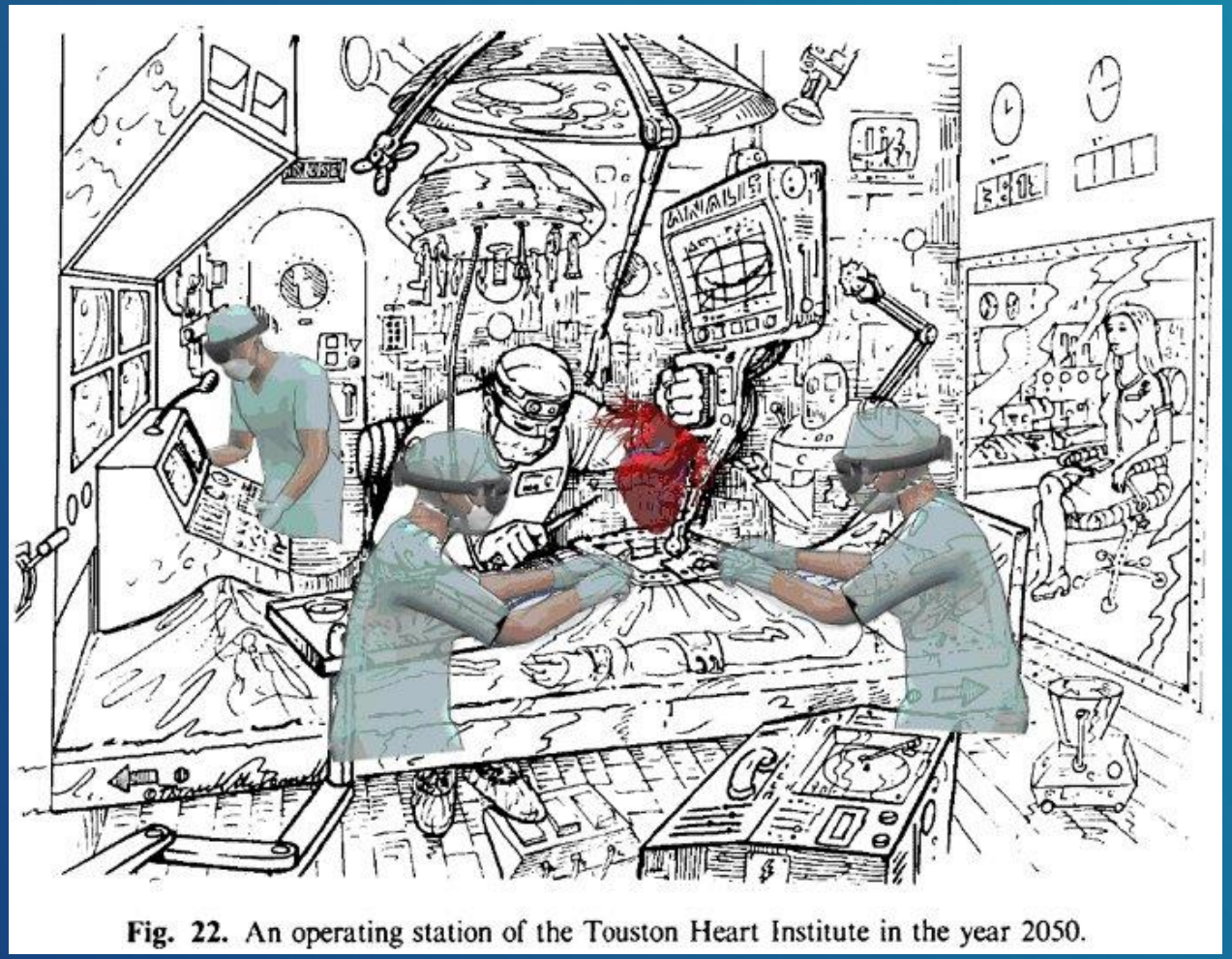

Fig. 22. An operating station of the Touston Heart Institute in the year 2050.

*based on Dr. A.F. Carpentier prediction (1983)

An easy-to-use and user centric 3D pre-/intra-operative guidance

for the surgical room of the future*

to make accessible, safe and effective transcatheter structural heart procedures

Target: structural Heart interventions

Complexity is common for SH interventions, mainly because of

- Anatomical variations
- Imaging data heterogeneity
- Medical devices specificities

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Clinical pains

- Operators/Imagers complex communication
- Steep learning curves (months, years)
- Issues/complications (up to 30-60%)
- Procedural times (up to 3-4 hours)

Current solutions

- No pro-active discussion
- Not integrated in the cath-lab

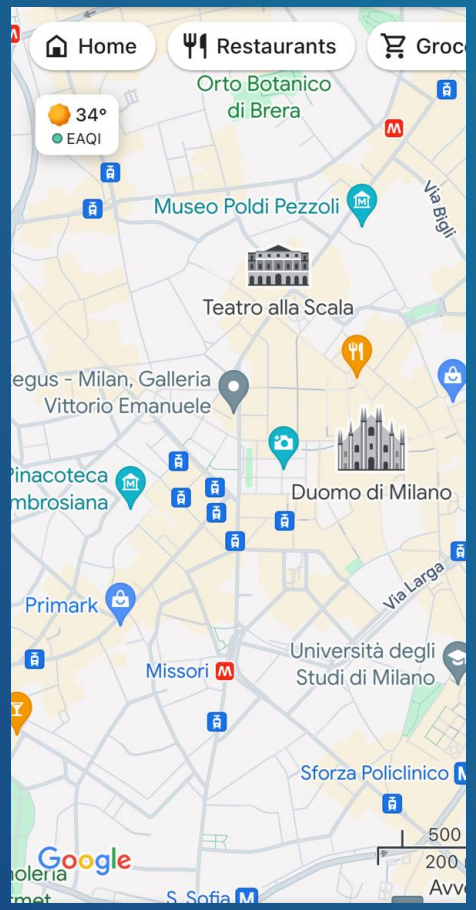
- (Con-)fusion of information (3D to 2D)
- No assistance on the device implant

Do not provide simple visualizations for device localization
Do not provide active Guidance/Navigation

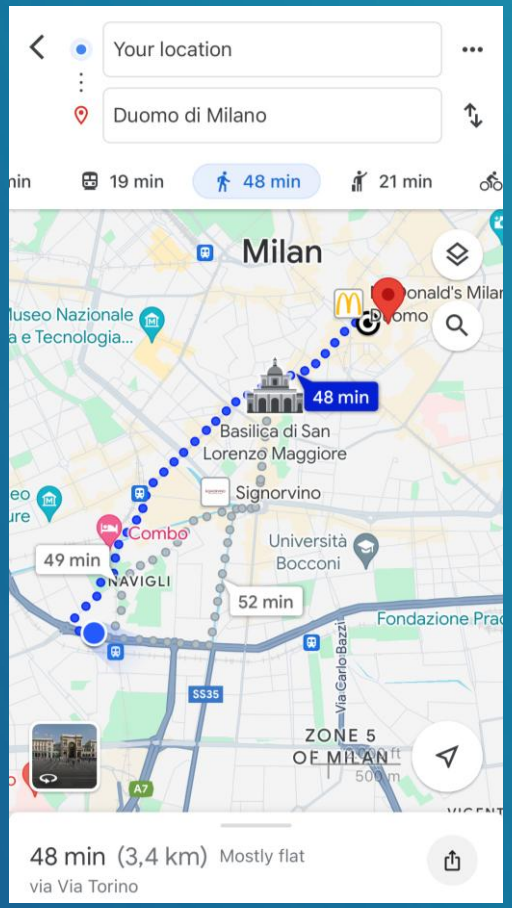
From information to advanced navigation

The analogy…..

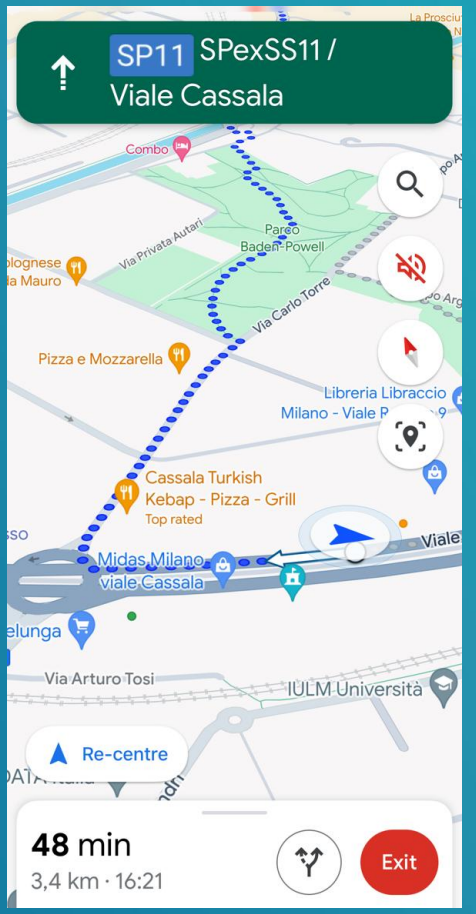
Detailed map



Route planning



Navigation

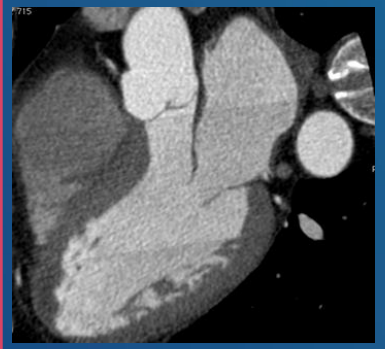


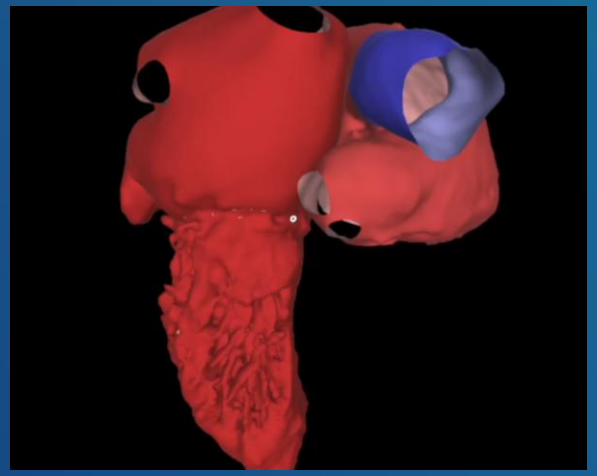
Our solution: 3D real-time navigation

Steps already developed and with commercial traction

Next technology iteration

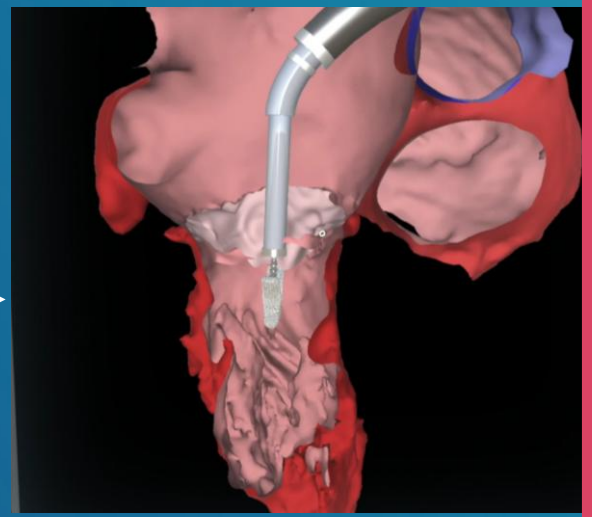
Detailed map





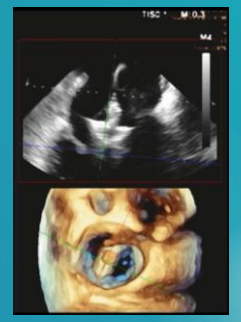
AI-based 3D heart reconstruction from CT scan

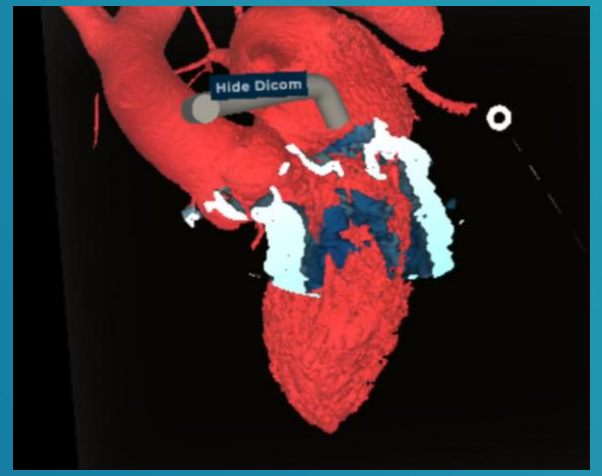
Route planning



3D virtual planning of device trajectories, implants, imaging

Navigation





Live 3D fusion of TEE-CT for real-time guidance/navigation

Product portfolio: ARTICOR® platform

ARTINESS

ARTICOR®

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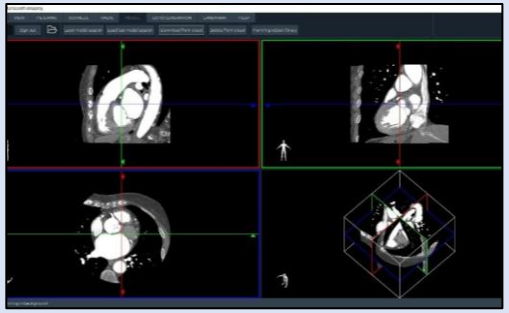
Full software platform for Intra-procedural guidance

Module 1 – ".imaging"



Pre-operative imaging 3D elaboration

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Module 2 – ".real"

3D procedural analysis

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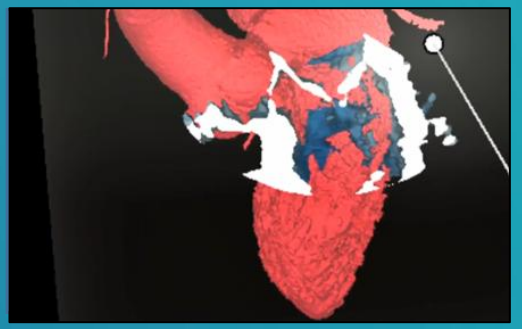
Module 3 – ".xrfusion"



Intra-operative CT-Echo 3D navigation

Sub-modules for Pre-operative planning

TARGET MARKETS (with customers)

General platform

General cardiovascular surgery/interventions

+

Specific additional Software plug-ins

Congenital	TeeR (Mitral)
LAA closure	TeeR (Tricuspid)

REGULATORY STATUS

- FDA 510k, under submission
- CE Mark (MDR), submission in 2025 (timeline under assessment based on definition of Class certification)

TARGET MARKETS (under development)

Echo guided procedures
- Mitral/Tricuspid repair/replacement
- LAA closure

First prototype for Mitral repair/replacement
- Preliminary in-vitro tests/validation
- Interest from KOLs for clinical activities (USA and EU)

Competitive scenario

		MxR platforms				Current solutions in the market: Image-fusion systems	Current solutions in the market: 3D planners
		ARTINESS	REAL VIEW / echopixel	MediView	apolar	GE / SIEMENS / PHILIPS	LARALAB / materialise / OSIRIX / FEOPS / 3mensio
Detailed map	Patient-specific 3D planning general purpose	✓	✓	✓	✓	✓	✓
	Cardiac (heart valves) dynamic 3D planning	✓				✓	
Route plan	Imaging-device simulation/preparation	✓					✓
	Automatic sizing measurements	✓	✓				✓
Navigation	Real-time 3D image fusion (CT + echo)	✓	✓	✓		✓	
	Live 3D navigation and AI-based implant assistance	✓					

Market drivers: AR/XR and AI

AUGMENTED/MIXED REALITY

Augmented/Mixed Reality in Healthcare market is on a trajectory of significant growth, estimated at USD 18.5 Billion $ by 2032 with a CAGR of 21% from 2023 to 2032

https://www.gminsights.com/industry-analysis/augmented-and-virtual-reality-in-healthcare-market?gclid=Cj0KCQjwwuG1BhCnARIsAFWBUC0fXdBHuQqae7qrQJj8wwtVqzBgiIz0Pc0DHQGMrBACG3kRXdsIQqcaAghsEALw_wcB

ARTIFICIAL INTELLIGENCE

AI in medical imaging market size was estimated at USD 762.84 million in 2022 to reach 14 billion in 2032 with a CAGR of 33.1% from 2023 to 2032

https://www.biospace.com/ai-in-medical-imaging-market-will-grow-to-14-423-15-million-over-next-10-years#:~:text=2023%20to%202032.-,The%20global%20AI%20in%20medical%20imaging%20market%20is%20estimated%20grow,the%20field%20of%20healthcare%20diagnostics.

Clinical validation and use

Massimo Chessa, pediatric cardiologist

Jenny E. Zablah, pediatric cardiologist
Gareth Morgan, cardiothoracic surgeon

Paolo Denti, cardiac surgeon
Edoardo Zancanaro, cardiac surgeon

Giuseppe Sangiorgi, int. cardiologist
Michela Bonanni, cardiologist

M. Bergmann, int. cardiologist

M. Joner, int. cardiologist

C. Skurk, int. cardiologist

Marianna Adamo, int. cardiologist
Fabrizio Rosati, cardiac surgeon

Francesco Petrella, thoracic surgeon

Mauro Pepi, cardiologist
Laura Fusini, cardiologist

Alfredo Giuseppe Cerillo, cardiac surgeon

Carlo Pace, cardiothoracic surgeon

IRCCS Policlinico San Donato

'Spedali Civili

Children's Hospital Colorado

Ospedale Careggi

IRCCS Ospedale San Raffaele

Centro Cardiologico Monzino

Policlinico Tor Vergata

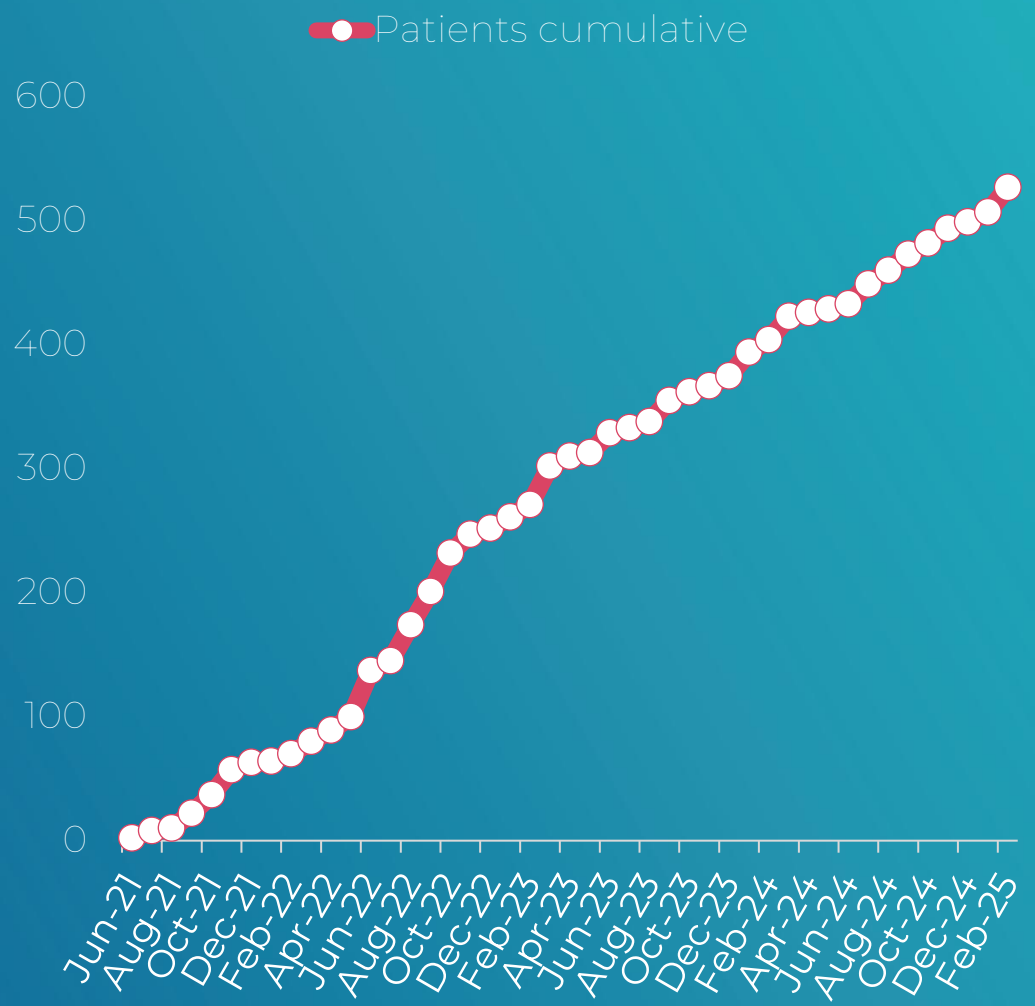
Ospedale Infantile Regina Margherita

ASKLEPIOS

Istituto Europeo di Oncologia

Deutsches Herzzentrum München

CHARITÉ



Advisory board

CLINICAL

Massimo Chessa, MD
IRCCS Policlinico San Donato, IT
Coordinator of Congenital Heart Disease, specialist in Cardiology and in Pediatric

Paolo Denti, MD
IRCCS Ospedale San Raffaele, IT
Coordinator Transcatheter Heart Valve Interventions, skilled operator of percutaneous approaches to structural heart.

Jenny Zablah, MD
Children's Hospital Colorado, US
Expert in congenital heart disease with a minimally invasive approach through cardiac catheterization

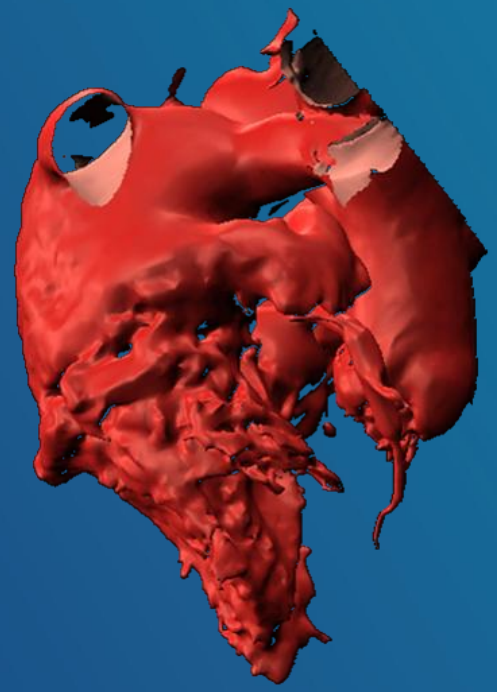
Nina Marsan Ajmone, MD, PhD, FESC
Leiden University Medical Center, NL
Cardiologist, specialized in non-invasive cardiovascular imaging and FESC for scientific excellence.

SCIENTIFIC/TECHNOLOGY

Alberto Redaelli, Prof.
Board member & co-founder
Full Professor at Politecnico di Milano
25+ years of experience in Cardiovascular Field

Emiliano Votta, Prof.
Board member & co-founder
Associate Professor at Politecnico di Milano
15+ years of experience in Cardiovascular Field

THANK YOU



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