Dr. François Gardavaud

MEDICAL PHYSICIST EXPERT (MPE) IN MEDICAL IMAGING | DATA SCIENTIST ADVISOR

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I have been practicing in medical imaging since 2011. I'm specialized in CT modality. I have a deep interest in programming and data science. This resume was even generated with the ® language.

🧰 Professional Experience

Data scientist advisor in medical physics   *Paris*

APHP.SORBONNE UNIVERSITY.   *since 2025*

• Data science project, clinical data management, clinical statistics, scientific report, publication assistance.

Medical physicist in medical imaging   *Paris*

TENON UNIVERSITY HOSPITAL - APHP.   *Since 2014*

• Patient radiation protection, protocol optimization for CT and interventional room modalities, patient skin doses evaluation in interventional radiology, women foetus doses assessment, deployment and use of 2 dose monitoring systems.
• Exploratory data analysis with R language, signal processing with Matlab language, publication assistance for radiologists.
• IT support: management of post-processing consoles, implementation of DICOM nodes, automation scripts design for Mac stations, R scripts development for extraction and analysis of the department clinical activity …
• Regulatory quality assurance. QC implementation in MRI.
• Technical support in imaging for my fellow physicists in radiation therapy.

Medical physicist in medical imaging   *Paris*

MONDOR UNIVERSITY HOSPITAL - APHP.   *2011 - 2014*

• Patient radiation protection, protocol optimization for X-Ray modalities, patient skin doses evaluation in interventional radiology, women foetus doses assessment, deployment and use of 1 dose monitoring systems.
• Regulatory quality assurance implementation.

🔍 Selected Publications

For a complete list of my publications see my Google Scholar profile ↗.

• C. Evin, L. Razakamanantsoa, **F. Gardavaud** et al. *Clinical, Dosimetric and Radiomic Features Predictive of Lung Toxicity After (Chemo)Radiotherapy*. **Clinical Lung Cancer**. 2025. 🔗

• M. Barral, L. Lassalle, **F. Gardavaud** et al.. *Virtual Injection Software Reduces Radiation Exposure and Procedural Time of Prostatic Artery Embolization Performed with Cone-Beam CT* **J Vasc Interv Radiol**. 2023. 🔗

• J. Greffier, Y. Barbotteau and **F. Gardavaud**. *iQMetrix-CT: New software for task-based image quality assessment of phantom CT images.* **Diagnostic and Interventional Imaging**. 2022. 🔗

• F.H Cornelis, L. Razakamanantsoa, M. Ben Ammar, M. Najdaw, S. El-Mouhadi, **F. Gardavaud**, M. Barral. *Percutaneous screw fixation of pelvic bone metastases using cone-beam computed tomography navigation.* **Diagnostic and Interventional Imaging**. 2022. 🔗

• F.H Cornelis, L. Razakamanantsoa, M. Ben Ammar, M. Najdaw, **F. Gardavaud**, S. El-Mouhadi, M. Barral. *Percutaneous Image-Guided Vertebral Fixation in Cancer-Related Vertebral Compression Fractures: A Case Series Study.* **Medicina**. 2021. 🔗

• M. Barral, **F. Gardavaud**, L. Lassalle et al. *Limiting radiation exposure during prostatic arteries embolization: influence of patient characteristics, anatomical conditions and technical factors.* **European radiology**. 2021. 🔗

• M. Savanovic, **F. Gardavaud,** D. Jaros et al. *Contribution of Imaging to Organs at Risk Dose during Lung Stereotactic Body Radiation.* **J Biomed Phys Eng**. 2021. 🔗

• E. Kermarrec, **F. Gardavaud**, K. Kerrou et al. *Risk and safety of breast imaging during pregnancy and lactation.* **Imagerie de la Femme**. 2020. 🔗

• **F. Gardavaud**, S. Tavolaro, N. Grussenmeyer-Mary et al. *Peak Skin Dose evaluation for vascular clinical procedures in interventional radiology: a comparison between three computation numerical.* **Physica Medica** 2018. 🔗

• H. Pasquier, **F. Gardavaud**, M. Chiaradia et al. *Iterative reconstructions in multiphasic CT imaging of the liver: qualitative and task-based analyses of image.* **Clinical Radiology**. 2018. 🔗

• E. Herin, **F. Gardavaud**, M. Chiaradia et al. *Use of Model Based Iterative Reconstruction (MBIR) in reduced-dose CT scan for routine follow up for patients with lymphoma: dose savings, image quality and phantom study.* **European radiology**. 2015. 🔗

• E. Meyblum, **F. Gardavaud**, T-H. Dao et al. *Breast tomosynthesis: Dosimetry and image quality assessment on phantom.* **Diagnostic and interventional Imaging**. 2015. 🔗

• **F. Gardavaud**, A. Luciani, A. Rahmouni. *Radiation exposure from CT scans in childhood and subsequent risk of leukaemia and brain tumours: a retrospective cohort study.* Correspondence. **The Lancet**. 2012 🔗

💡 Projects

🖥 IT Development

F. Gardavaud, H. Pasquier, A Luciani, A. Rahmouni. ProtoEnhance : software to help scan acquisition parameters optimization for the Legacy platform of GE HealthCare Computed Tomography ⬈

F. Gardavaud. Code Ⓡ to generate interventional radiology DRL and view key patient exposure statistics. ⬈

F. Gardavaud. Code Ⓡ to generate CT DRL and view key patient exposure statistics. ⬈

📄 Patent

H. Pasquier, D. Crotty, S. Jacquot Ingles, A. Luciani, **F. Gardavaud**. Methods and apparatus to correct the measurement of water equivalent diameter in computed tomography when patients are miscentered. US patent US10966671B2. Avril 2021. ⬈

🧭 Mentoring Experience

Oncological and functional outcomes of image-guided high-dose-rate uterovaginal brachytherapy with single implantation: a French multicenter study.
Master 2 student internship supervisor.

Sorbonne University, January - August 2025

Radiomic study to identify predictive biomarkers of radiochemotherapy treatment outcome in non-small cell lung cancer
Master 2 student internship supervisor.

Tours University, February - August 2022

Contribution of metabolic PET-CT imaging combined with radiomics analyzed surveillance imaging in locally advanced non-small cell lung cancer treated with radiochemotherapy to predict survival outcomes and toxicity
Master 2 student internship supervisor.

Grenoble Alpes University, February - August 2022

Medical physicics intership in medical imaging

Students internship supervisor.

Tenon University Hospital 2014 - 2020

Validation of an automated solution for organ dose estimation in CT

Master 2 student internship supervisor.

Clermont-Ferrand University, April - October 2019

Development of an automatic CT image analysis system

Master 2 student internship supervisor.

Clermont-Ferrand University, February - August 2018

Development of a system to assist in CT protocols personalized optimization
PhD student supervisor.

Paris-Sud University, 2014 - 2017

IGRT implementation on a Novalis TrueBeam Stx (Varian)

Master 2 student internship supervisor.

Clermont-Ferrand University, March - August 2016

Development of a module helping in CT acquisition parameters optimization

Master 2 student internship supervisor.

Clermont-Ferrand University, March - August 2013

Development of an evaluation module for CT-MRI fusion in brain imaging

Master 1 student internship supervisor.

Clermont-Ferrand University, May - September 2012

Study and implementation of reference doses levels delivered in interventional cardiology for diagnostic and therapeutic purposes
Master 2 student internship supervisor.

Paris-Sud University, April - September 2012

Quality controls implementation in CT scanning
Bachelor student internship supervisor.

Créteil University, May - June 2011

💻 Teaching _____

Courses were given in French.

Welcoming a new scanner: from acceptance to protocol optimization
CLASSROOM GE HEALTHCARE : EXPERT TO EXPERT PHYSICIENS 🔗.
- Program creation, practical work design
- Lecture : Fundamental properties of image quality.
- Lecture : State of the art on CT acceptance
- Lecture: Tips & tricks in CT.

Buc
Since 2019

Image quality principle and CT application specificities
TEACHER IN MASTER 2 SIM
- Course exposing the state of the art of the image quality qualification and quantification with medical physics tools.

Créteil University
2014 - 2022

AI in radiology
TEACHER IN SECOND YEAR UNDERGRADUATE.
- Lecture popularizing artificial intelligence concepts in medicine by illustrating with a medical physics project.

Faculty of Medicine Sorbonne University
2019 - 2021

Advanced CT optimization with iterative reconstructions
POSTGRADUATE EDUCATION 🔗.
- Scientific council member : Program creation, practical work design, administrative tasks.
- Lecture: Classical and advanced metrics for CT image quality asssessment.
- Lecture : New metrics: can they be used on patients?

Nîmes
2021-10

Patient radiation protection for medical physicists specialized in radiodiagnostics
POSTGRADUATE EDUCATION
- Scientific council member : Program creation, practical work design, administrative tasks.
- Lecture : Image quality metrics.
- Lecture : image quality metrics tailored to CT iterative reconstruction.

Online
2021-01

CT performance
ENSEIGNANT À LA FORMATION DQPRM.
- Course exposing the state of the art of the image quality qualification and quantification with medical physics tools.

INSTN, Saclay
2018 - 2019

Patient radiation protection for medical physicists specialized in nuclear medecine
POSTGRADUATE EDUCATION
- Lecture : Classical and advanced metrics for CT image quality asssessment.

Paris
2018-03

Patient radiation protection for medical physicists specialized in radiodiagnostics
POSTGRADUATE EDUCATION
- Scientific council member : Program creation, practical work design, administrative tasks.
- Lecture : Image quality metrics.
- Lecture : image quality metrics tailored to CT iterative reconstruction

Lyon
2017-09

Education

➕ POST-GRADUATE TRAINING

All training courses have been passed in French, except those outside France

06/2024	Data Science essentials with R. 🏅 Certificate of achievement.	*PLB Levallois-Perret, France*
2023-10	Refresher training in biostatistics with JASP and JAMOVI software.	*URFIST Bordeaux, France*
2021-12	MOOC : Learn about Data Science and its challenges. 🏅 Certificate of achievement.	*France Université Numérique. CY Cergy Paris University*
2021-04	MOOC : Multidimensional data analysis. 🏅 Certificate of achievement.	*France Université Numérique. Agrocampus. Rennes*
2020-11	MOOC : Research Ethics. 🏅 Certificate of achievement.	*France Université Numérique. Lyon University.*
2019-10	MOOC : Introduction to Statistics with R. 🏅 Certificate of achievement.	*France Université Numérique. Paris Sud University.*
2019-06	Introduction to clinical data management and analysis with R. Intermediate level.	*Cancéropôle Ile-de-France. Paris*
2018-12	Postgraduate education : MRI: methodological bases and applications in imaging and radiotherapy.	*Clermont-Ferrand*
2018-12	MOOC : Introduction to clinical data management and analysis with R. Beginner level.	*Cancéropôle Ile-de-France. Paris*
2018-12	MOOC : Reproducible Research: Methodological Principles for Transparent Science. 🏅 Certificate of achievement.	*France Université Numérique. INRIA.*
2018-01	Computed Tomography – Technology, Dosimetry, Optimization. 🏅 Distinction Award.	*EFOMP School for MPE, Prague, Czech Republic*
2017-10	GE training in MRI sequence programming (EPIC and ORCHESTRA).	*GE Training Center, Buc*
2017-07	Magnetic Resonance Imaging: Advanced Clinical Applications Safety Aspects, Quality Control. 🏅 Distinction award.	*EFOMP School for MPE, Prague, Czech Republic*
2017-02	Leadership in Medical Physics: Development of the profession and the challenges for the Medical Physics Expert in Diagnostic and Interventional Radiology. 🏅 Merit award.	*EUTEMPE-RX, Module MPE01, Prague, Czech Republic*
2016-03	Role of the medical physicist in CT imaging and patient dose optimization. 🏅 Distinction award.	*EUTEMPE-RX, Module MPE08, Lausanne, Switzerland*
2015-10	Postgraduate education: Image Processing in Medical Physics.	*Nantes*

📖 UNIVERSITY EDUCATION

October 2025	PhD : Data science and modeling for image quality assessment of thoracic computed tomo- graphy examinations.	*ISCD - ED SMAER. Sorbonne University. Paris*
2009 -2010	French internship in medical physics.	*Institut Curie et Hôpital Militaire du Val-de-Grâce, Paris*
2009	French medical physics internship access context. 🏅 Ranked 13th out of 78.	*Paris*
2008 - 2009	Master 2 - Research, mention Medical Physics. 🏅 Honors.	*Paris XI university.*

Skills

⚙ TECHNICAL SKILLS

Main Equipments	Professional software	QC material	Phantoms
GE CT scanners	ADW	RTI Piranha	CATPHAN 600
GE and Hologic mammographs	ArtiScan	PTW pencil ionization chamber	Kyoto Kagaku PBU-60
GE interventional room	DoseWatch	Gafchromic XRCT2 films	Kyoto Kagaku Lungman
GE and Siemens MRI	RDM		Mercury Phantom
	ImageJ		
	MRQuantif		
	Osirix		
	Horos		

</> IT SKILLS

Programming languages
 AppleScript – Git – Markdown – Matlab – R – Shell

Software
FileZilla – Rstudio – Visual Code Studio

OS
 macOS – Linux(Ubuntu) – Windows

📅 EVENT ORGANIZATION

10/2021	Postgraduate education : Advanced optimization in computed tomography with iterative reconstructions 🔗.	*Nîmes*
01/2021	Postgraduate education : Patient radiation protection for medical physicists specialized in radiodiagnostics 🔗.	*En ligne*
09/2017	Postgraduate education : Patient radiation protection for medical physicists specialized in radiodiagnostics.	*Lyon*

🔤 LANGUAGES

Compétence	French	English	Spanish
Reading	mother tongue	C2	A1
Writting	mother tongue	C2	A1
Speaking	mother tongue	C1	A1

Common European Framework of Reference for Languages: A1/A2: Basic User. B1/B2: Independent User. C1/C2: Proficient User

♥ Inter-professional activities

2017 - 2023	Vice-president of the medical physics college.	*APHP*
2017 - 2018	Secretary of the Imaging Section.	*French national society of medical physics*
2015 - 2016	Medical Physics Expert for Computed Tomography Tenders	*AGEPS - APHP*

✪ Awards & Distinctions

2017	Medical Physicist Expert (MPE)	*EFOMP*
2016	Radiation Protection Pavilion Prize Winner	*CIRSE, Barcelona*
2009	Fellowship	*French national society of radiation protection*

💬 References

- **Jean-Noel Foulquier, PhD**. 📍 CHU Tenon, APHP, Paris. @ `jean-noel.foulquier@aphp.fr`
- **Pr. François Cornelis, MD, PhD**. 📍 Memorial Sloan-Kettering Cancer Center, New York, USA. @ `cornelif@mskcc.org`
- **Pr. Alain Luciani, MD, PhD**. 📍 CHU Henri Mondor, APHP, Créteil. @ `alain.luciani@aphp.fr`
- **Dr. Leo Razakamanantsoa, MD, MSc**. 📍 CHU Tenon, APHP, Paris. @ `leo.razakamanantsoa@aphp.fr`

🝰 Interests and sport practice

- **Sport** : Bicycle 🚲, fitness session "Les Mills" 🏋 and running 🏃.
- **Voyage** : Many trips ✈ to Europe area to discover other cultures; keen interest in Japanese culture.
- **Musique** : Guitar practice 🎸