



# Marcel Frederico Alvarez

## Medical Physicist

37 years old

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Uruguay

At 37 years of age (Montevideo, 12/15/1987) and with solid experience as a Medical Physicist in Diagnostic Medical Imaging since 2019 and Radiotherapy and Brachytherapy since 2018, I have developed a professional career that combines a passion for medical physics with a constant commitment to improving the quality of medical care. I am a responsible, proactive person with leadership skills that have allowed me to stand out in my field.

In addition, I am currently working as a medical physicist in nuclear medicine.

My main focus has been applying the principles of physics and technology to the diagnostic and treatment of diseases, ensuring maximum patient precision and safety. I am dedicated to implementing quality protocols and optimizing practices for outstanding results.

I am passionate about research and development of new techniques and processes in Medical Physics, which has led me to stay updated on scientific and technological advances. As a Medical Physicist, my goal is to contribute to the well-being of patients and my medical team's success, always prioritizing patient safety and protection.

My proactive approach and leadership skills have allowed me to collaborate closely with multidisciplinary teams and work on projects effectively. I am committed to continuous learning and constant improvement and am always willing to take on new challenges that allow me to grow professionally.

In summary, I am a Medical Physicist committed to excellence in healthcare. I have a strong work ethic and determination to contribute meaningfully to the field of medical physics. I am eager to continue advancing my career and contributing to the health and well-being of patients.

For more details, check my online resume : [www.marcelfredericoalvarez.com](http://www.marcelfredericoalvarez.com)

## Professional Experience

### Medical Physicist

Hospital de Clínicas - Universidad de la República - Since April 2024



Medical Physicist in the Academic Unit of Nuclear Medicine

### Medical Physicist

Hospital Pereira Rossell - Since April 2018



- ▶ Medical Physicist of the Medical Imaging Department (since 2022) in charge of the quality control program and protocol optimization.
- ▶ Medical Physicist of the Radiotherapy Department (since 2018). QC on Linac and HDR BQT, TPS QC, and treatment planifications in teletherapy and brachytherapy.

### Medical Physicist

CASMU - Since September 2019



Medical Physicist of the Medical Imaging Department (since 2022) in charge of the quality control program and protocol optimization.

### Assistant professor Grade 2 EUTM

Medicine University - Since January 2020



Assistant Professor in charge of the Basic and Radiology Physics courses.  
Advisor in final bachelor's thesis.

## Assistant professor Grade 2 CIN UDELAR

Science Faculty - Centro de Investigaciones Nucleares - Since June 2015

Assistant in the Radiation Protection Unit.



## Medical Physicist (Substitute)

ONCOSUR - October 2018

Substitute Medical Physicist. QC Linac

## Physics Teacher

UTU - March 2010 to March 2017



## Physics Teacher

Colegio Jesús María - March 2013 to September 2014




## Physics Teacher

Consejo de Educación Secundaria - March 2012 to December 2012



## Languages

 English ★★★★★☆

 Portuguese ★★★★★☆

## Education

### PhD Medical Sciences

ProInBio Facultad de Medicina Udelar

Since October 2022

PhD Candidate in Medical Sciences focused on Medical Physics.

PhD work title:

"The development of computational metrics to optimize clinical image quality in fluoroscopy and acquisition for cardiovascular applications."

Advisors: Dr. Hilde Bosmans, Dr. Nicholas Marshall (KU Lueven, Belgium)

Dr. Hugo Cerecetto. UDELAR.

### Master's Degree

Universidad de la República

September 2016 to June 2019

Master's Degree by the Chemistry Faculty and PEDECIBA focused on Medical Physics.

Thesis title: Estudio de la dosis depositada por radiaciones ionizantes de tomografías computarizadas en pacientes pediátricos.

Orientadores: Dr. Hugo Cerecetto (CIN - UDELAR), Dr. Arnaldo Prata Murao (UFMG - Brasil)

### Bachelor on Medical Physics

Universidad de la República

March 2011 to December 2015

## Conferences, events, courses and publications



9 - 11 noviembre 2023 - Congreso Chileno de Física Médica - 1. Control de calidad en Fluoroscopia e Intervencionismo. 2. Figuras de mérito para la evaluación de la calidad de imagen en radiodiagnóstico. (Speaker)

2023 - Revista Brasileira de Física Médica, 17, 609-609. - Caracterización del detector de un sistema de mamografía digital en modos de adquisición 2D y 3D.

Frederico, M., & Banguero, Y. (2023).

[S.l.], v. 24, n. 1, p. 5 - 15, dic. 2020. - Revista de Imagenología - Las pruebas de control de calidad de imagen en los tomógrafos y su significado en la práctica clínica.

Frederico, M et al <http://sriuy.org.uy/ojs/index.php/Rdi/article/view/86>

Volume7 (Nro 1A), 2019 - Brazilian Journal of Radiation Sciences (BJRS) - Study for pediatric protocol optimization in chest CT scans. Brazilian Journal of Radiation Sciences (BJRS)

Frederico, M., Banguero, Y., Cerecetto, H., Santana, P., Oliveira, F., Prata Mourao, A.

17 - 22 agosto 2022 - 4th European Congress of Medical Physics, Dublin, Ireland - "A method to determine the exposure needed in different conditions to maintain an image quality level in digital radiography."

Frederico, M. Banguero, Fernandez, A., Miquelez.

2021 - European Congress of Medical Physics - Comparison of two different indirect flat panels through their characterizations

Frederico, M. Banguero, Y.

setiembre 2021 - Latin American congress on solid state dosimetry and radiation measurements - Image Quality and dosimetric evaluation of a digital mammography system in 2D and 3D acquisition modes.

De Souza, J. Garré, N., DellaCasa, P., Sosa, M., Frederico, M

2021 - Congresso Brasileiro de Física Médica - Caracterización del detector de un sistema de mamografía digital en modos de adquisición 2D y 3D (Speaker)

Frederico, M. Banguero, Y.

junio 2019 - 6to Congreso conjunto, 22 SEFM (Sociedad Española de Física Médica), 17 SEPR (Sociedad Española de Protección Radiológica). Burgos, España. - Estudio de la dosis depositada por Tomografía Computarizada de tórax en pacientes pediátricos de dos años de edad.

Frederico, M., Peter, E., Ezquerra, V., Nader, A., Banguero, Y., Cerecetto, H., Prata Mourao, A.

setiembre 2019 - 24th ICMP, 8th ALFIM and 2nd SOFIMECH Conference. Santiago de Chile, Chile. (2019, Setiembre). - Pediatric protocol optimization for chest CT scans in three radiological services. (Speaker)

Frederico, M., Gigirey, P., Banguero, Y., Cerecetto, H., Prata Mourao, A.

diciembre 2018 - ISSSD 2018 - Dosimetric Evaluation of Computed Tomography Chest Scans for Adult and two-year-old Patients

Frederico, M., Santos, F., Cerecetto, H., Paiva, F., Prata Mourao, A.

agosto 2017 - Simposio Internacional sobre Protección Radiológica en Medicina. Arequipa, Perú. - Estudio para la optimización de protocolos pediátricos mediante exploraciones de tórax en tomografía computarizada. (Speaker)

Frederico, M., Banguero, Y., Cerecetto, H., Santana, P., Oliveira, F., Prata Mourao, A.

abril 2018 - IRPA Conference. XI Congreso Regional de Seguridad Radiológica y Nuclear. Congreso Regional IRPA. - Optimización de protocolos pediátricos de tórax en dos centros médicos. (Speaker)

Frederico, M., Banguero, Y., Cerecetto, H., Santana, P., Oliveira, F., Prata Mourao, A

Octubre 2017 - INAC - Verification of the positioning of radiotherapy patients with two webcams.

Piriz, G., Banguero, Y., Frederico, M., Lucas, M., Bertini, D., Doldán, R.

noviembre 2016 - XV Congreso de la Sociedad Uruguay de Física. - Simulación de la dosis depositada por un irradiador gamma del tipo GammaCell 4000A y su comparación con medidas obtenidas mediante el método dosimétrico de Fricke.

Frederico, M., Irigoyen, J., Rucci, A., Tassano, M., Cabrera, M., Banguero, Y.

## Continuous training



**Regional Workshop on Optimization of Protection in Pediatric Interventional Radiology, San José, Costa Rica 16-19 octubre 2023**  
 Proyecto OPRIPALC  
 Intervencionismo Cardíaco Pediátrico  
 San José, Costa Rica.



**Joint ICTP-IAEA Training Course on Quality Assurance, Quality Control and Optimization of Equipment and Procedures Used in Fluoroscopically-Guided Interventional Radiology 9-13 Octubre 2023**  
 Trieste, Italia



**Regional Training Course on Quality Assurance and Dosimetry in Dual Energy and Multi-Detector Computed Tomography 11-15 setiembre 2023**  
 Bogotá, Colombia



**Fellowship: EVT2207864: URU6041 1 junio -30 junio 2023**  
 KU Leuven, Bélgica.  
 Dr. Nicholas Marshall Dr Hilde Bosmans



**IAEA-Argonne training activity on comprehensive clinical audits in diagnostic radiology under the quality assurance audit for diagnostic radiology improvement and learning (QUAADRIL) 24-28 abril 2023**  
 Houston Texas, USA.



**Regional Training Course on Quality Assurance and Dosimetry in Mammography (conventional and digital) and tomosynthesis 6-10 febrero 2023**  
 Curitiba, Brasil



**Regional Training Course on Quality Assurance and Dosimetry in general radiography (conventional and digital), fluoroscopy and interventional radiology 14-19 Noviembre 2022**  
 San José, Costa Rica



**Internship in Diagnostic Radiology Medical Physics Department 4 setiembre - 10 octubre 2021**  
 Hospital Universitario de Navarra,  
 Pamplona, Navarra, España.



**Fundamentals of Magnetic Resonance Marzo - Julio 2021**  
 Instituto de Física  
 Facultad de Ciencias,  
 UdelaR.



**Curso Marilia Texeira da Cruz Digital Radiology and Ultrasound 19-20 setiembre 2020**  
 Asociación Brasileira de Física Médica



**IAEA Regional Training Course on Radioactive Waste Management. 21-25 octubre 2019**  
 Montevideo, Uruguay



**IAEA Training on Diagnostic Reference Levels 10-11 junio 2019**  
 Burgos, España



**Radiotherapy and TBI 19-22 noviembre 2018**  
 Hospital Pereira Rossell,  
 Montevideo, Uruguay  
 Dr. Yanai Krutman, Head of Medical Physics.  
 Radiotherapy Department,  
 Institute of Oncology  
 Soroka University Medical Center,  
 Beer Sheva, Israel



**Advance radiotherapy treatment planning 31 Marzo - 1ero Abril 2017**  
 Facultad de Ciencias (UdelaR), Montevideo, Uruguay  
 Professor:  
 Dante Roa, PhD-DABR,  
 Clinical Professor,  
 U.California-Irvine, Irvine, CA, USA, Daniel Schiffner, M.D., Palo Alto Medical Foundation, S.Fco., CA, USA.



**Training on TLD and OSL personal Dosimetry 2017 julio - diciembre**  
 Centro de Desenvolvimento da Tecnologia Nuclear, CNEN. Belo Horizonte, Brasil  
 Dr. Thessa Cristina Alonso  
 Personal Dosimetry Department, CDTN, Belo Horizonte, Brasil



**Curso Marilia Texeira da Cruz Advanced Radiotherapy Techniques 10-11 Setiembre**  
 Entrenamiento Online



**Integrated Management Systems and  
Development of the Safety Culture 15 - 26  
agosto 2016**  
Argonne National Laboratory USA, Chicago, USA



**Radioactive waste management Scientific visit –  
IAEA. (URU16005V) Noviembre 21 – Diciembre  
1ero 2016**  
Centro de Higiene y Protección contra las  
radiaciones  
La Habana – CUBA.

## Skills

### Informática

- ▶ Python
- ▶ Matlab
- ▶ C++
- ▶ Windows OS - Office
- ▶ Ubuntu

## Professional and Personal References

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- ▶ Dr. Andres García Bayce, Jefe de Servicio.  
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Hospital Pereira Rossell  
Montevideo - Uruguay  
(+598) 099 627 663
- ▶ Dr. Hugo Cerecetto, Profesor Titular Gr 5.  
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Nucleares.  
Universidad de la República.  
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(+598)2525-0901 (105), hcerecetto@cin.edu.uy
- ▶ Dr. Arnaldo Prata Mourao, Profesor Titular.  
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