



Vicent Giménez Alventosa

Date of birth: 22/12/1992 | **Nationality:** Spanish | **Phone number:** (+34) 00000 (Work) | **Email address:**

vicent.gimenez.alventosa@gmail.com | **Website:** <https://github.com/vigial> | **Website:**

<https://publons.com/researcher/T-3467-2019/> | **Website:** <https://orcid.org/0000-0003-1646-6094> | **LinkedIn:**

www.linkedin.com/in/vicent-gimenez-alventosa | **Address:** Camino de Vera s/n, 46022, Valencia, Spain (Work)

WORK EXPERIENCE

TENURED ASSOCIATE PROFESSOR – POLYTECHNIC UNIVERSITY OF VALENCIA – 24/11/2025 – Current – VALENCIA, SPAIN

- Teaching in the Dept. of Applied Statistics and Operational Research, and Quality.
- Research member of **Research Institute for Industrial, Radiophysical and Environmental Safety (ISIRYM)**, with a focus on Medical Physics and the development of computational tools for research in this field.

I+D+I SENIOR SOFTWARE ENGINEER – BRUKER – 01/09/2024 – 31/12/2025 – VALENCIA, SPAIN

- Design and development of simulation frameworks
- Perform accurate simulations for device design
- Development of new methods for enhancing image quality in PET reconstruction
- Full-cycle software development and maintenance in C++ and Java, optimizing performance and reliability

PHD. RESEARCHER – UNIVERSITY OF VALENCIA – 04/2023 – 31/08/2024 – VALÈNCIA, SPAIN

Researcher and software developer in the research project "Innovación y desarrollo en la mejora y personalización de los tratamientos de radioterapia convencional y prontoterapia. CPI-23-071". Funded by "Programa Prometeu per a grups de recerca d'Excel·lència de la Conselleria d'Innovació, Universitats, Ciència i Societat Digital, (CIPROM/2021/064)"

Main tasks:

- Develop and maintain C++ modules in the penRed framework to perform Monte Carlo simulations of radiation transport in the field of medical physics.
- Perform simulations for real and synthetic cases in order to benchmark studies, tools and devices used for clinical treatments and research.

PHD. PROFESSOR – UNIVERSIDAD EUROPEA DE VALENCIA,S.L. – 01/09/2022 – 06/2023 – VALENCIA, SPAIN

Professor in Data Science and Physics

I+D+I BACKEND DEVELOPER – INEHEALTH TEAM SL – 08/08/2022 – 24/01/2023 – MALLORCA, SPAIN

Responsibilities:

- Development of backend microservices to process DICOM medical images.
- Development of methods for DICOM metadata classification, processing and big data analysis.

Used language: Go

RESEARCH AND SOFTWARE ENGINEER – INST . DE INSTRUMENTACIÓN PARA IMAGEN MOLECULAR - POLYTECHNIC UNIVERSITY OF VALENCIA – 06/02/2017 – 08/08/2022 – VALENCIA, SPAIN

Researcher & Software Developer:

Research projects:

1. *Desarrollo y Homologación de Equipo Clínico Compacto de Resonancia Magnetica Dental.*

2. Control Objetivo del Deterioro Cognitivo Mediante Análisis de Imagen de Amiloide.
3. Predictive In-Silico Multiscale Analytics To Support Cancer Personalized Diagnosis And Prognosis, Empowered By Imaging Biomarkers (PRIMAGE)

Phd development in Cloud Computing:

Duration: 01/09/2018 – 09/12/2021

- **Research focus:** Developed methods and applications for High-Performance Computing (HPC) in cloud environments.
- **Funding:** Supported by the 'Grants for the Hiring of Predoctoral Research Personnel' program, co-financed by the 'Generalitat Valenciana' and the European Social Fund (ESF) under key ACIF/2018/148.

Responsibilities:

- Developed, implemented, and integrated new methods and software for medical image analysis and reconstruction.
- Developed Monte Carlo software for better accuracy and efficiency.
- Conducted simulations of radiation transport.
- Optimized computationally expensive tasks for execution in cloud environments.

Used Programming languages:

- **Primary:** C++
- **Secondary:** Python, bash, javascript

EDUCATION AND TRAINING

10/09/2018 – 03/06/2022 València, Spain

PHD. IN COMPUTER SCIENCE Polytechnic University of Valencia (UPV)

Website <https://www.upv.es> | Field of study Software and applications development and analysis | Final grade Excellent |

Level in EQF EQF level 8

01/10/2015 – 25/11/2021 Burjassot, Spain

PHD. IN PHYSICS University of Valencia

Website <https://www.uv.es/> | Field of study Physics | Final grade Excellent, "Cum Laude" | Level in EQF EQF level 8

26/09/2016 – 28/09/2017 Valencia, Spain

MSC IN PARALLEL AND DISTRIBUTED COMPUTING Polytechnic University of Valencia

Website <https://www.upv.es/> | Level in EQF EQF level 7

15/09/2014 – 04/09/2015 Burjassot, Spain

MSC IN ADVANCED PHYSICS University of Valencia

Website <https://www.uv.es/> | Level in EQF EQF level 7

15/10/2010 – 21/09/2014 Burjassot, Spain

BSC IN PHYSICS University of Valencia

Website <https://www.uv.es/> | Level in EQF EQF level 6

SKILLS

C++ | Python | multithreading | High Performance Computing (HPC) | Linux | Git | MPI (C++) | Amazon Web Services (Lambda, EC2, API Gateway, DynamoDB) | OpenCL | physics | JIRA | Simulation | Java | Debugging (gdb, valgrind) | Software Profiling

PUBLICATIONS

2024

Enabling particle transport on CAD-based geometries for radiation simulations with penRed

DOI: 10.1016/j.cpc.2024.109091

2022

Benchmark of the PenRed Monte Carlo framework for HDR brachytherapy

DOI: 10.1016/j.zemedi.2022.11.002

2021

The PENELOPE Physics Models and Transport Mechanics. Implementation into Geant4

DOI: 10.3389/FPHY.2021.738735

2021

PenRed: An extensible and parallel Monte-Carlo framework for radiation transport based on PENELOPE

DOI: 10.1016/j.cpc.2021.108065

2021

TaSaaS: A Multi-Tenant Serverless Task Scheduler and Load Balancer as a Service

DOI: 10.1109/ACCESS.2021.3109972

2020

Depth-dose measurement corrections for the surface electronic brachytherapy beams of an Esteya® unit: a Monte Carlo study

DOI: 10.1088/1361-6560/ab9773

2020

Monte Carlo calculation of beam quality correction factors for PTW cylindrical ionization chambers in photon beams

DOI: 10.1088/1361-6560/ab9501

2019

A framework and a performance assessment for serverless MapReduce on AWS Lambda

DOI: 10.1016/j.future.2019.02.057

2019

TOF studies for dedicated PET with open geometries

DOI: 10.1088/1748-0221/14/02/C02006

2018

Building blocks of a multi-layer PET with time sequence photon interaction discrimination and double Compton camera

DOI: 10.1016/j.nima.2018.03.076

2018

Correction factors for ionization chamber measurements with the 'Valencia' and 'large field Valencia' brachytherapy applicators

DOI: 10.1088/1361-6560/aac27a

2018

Improving PET Sensitivity and Resolution by Photon Interaction Sequence Timing Discrimination

DOI: 10.1109/NSSMIC.2017.8532644

2017

Collision-kerma conversion between dose-to-tissue and dose-to-water by photon energy-fluence corrections in low-energy brachytherapy

DOI: 10.1088/1361-6560/aa4f6a

2017

Improving PET sensitivity with a Compton algorithm

DOI: 10.1088/1742-6596/931/1/012012

2017

Strategies of statistical windows in PET image reconstruction to improve the user's real time experience

DOI: 10.1088/1742-6596/931/1/012025

2016

Graphical interface for designing geometries and processing DICOM images for PENELOPE

DOI: 10.1109/GMEPE-PAHCE.2016.7504643

2016

Study of CT/MRI mutual information based registration applied in brachytherapy

DOI: 10.1109/GMEPE-PAHCE.2016.7504641

2016

Transit Dose Comparisons for Co-60 and Ir-192 HDR Sources

DOI: 10.1088/0952-4746/36/4/858

VoxelMages: a general-purpose graphical interface for designing geometries and processing DICOM images for PENELOPE

DOI: 10.1016/j.apradiso.2016.09.021

● **PROJECTS**

2017 – CURRENT

Parallel Engine for Radiation Energy Deposition (PenRed)

Leading the development of PenRed, a highly parallel, optimized and modular framework for simulating radiation transport through matter. It is an open source project available in github.

Link <https://github.com/PenRed/PenRed>

06/02/2017 – 30/06/2017

DESARROLLO Y HOMOLOGACION DE EQUIPO CLINICO COMPACTO DE RESONANCIA MAGNETICA DENTAL (RTC-2014-2754-1)

01/06/2017 – 30/06/2020

CONTROL OBJETIVO DEL DETERIORO COGNITIVO MEDIANTE ANÁLISIS DE IMAGEN DE AMILOIDE (RTC-2016-5186-1)

13/12/2021 – 07/08/2022

PREDICTIVE IN-SILICO MULTISCALE ANALYTICS TO SUPPORT CANCER PERSONALIZED DIAGNOSIS AND PROGNOSIS, EMPOWERED BY IMAGING BIOMARKERS (826494)

20/04/2023 – 31/08/2024

Innovación y desarrollo en la mejora y personalización de los tratamientos de radioterapia convencional y prontoterapia. CPI-23-071

LANGUAGE SKILLS

Mother tongue(s): **CATALAN** | **SPANISH**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	B2	B2	B2	B2	B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

SCIENTIFIC CONFERENCES

16/10/2023 – 20/10/2023

4th International Conference on Dosimetry and its Applications (ICDA-4)

22/03/2021 – 27/03/2021

2020 International Conference on High Performance Computing & Simulation

04/04/2016 – 09/04/2016

Global Medical Engineering Physics Exchanges. Pan American Health Care Exchanges (GMEPE/PAHCE)

PATENTS

14/03/2019

METHOD AND DEVICE FOR DETECTING GAMMA RAYS WITH ABILITY TO DETERMINE MULTIPLE INTERACTIONS AND THEIR CORRESPONDING TIME SEQUENCE

Publication number WO/2020/183052

Link <https://patentscope.wipo.int/search/es/detail.jsf?docId=WO2020183052>

TEACHING EXPERIENCE

2022 – 2025

University of Valencia - Department of Atomic, Molecular and Nuclear Physics

Professor in the following subjects:

- Radiation Dosimetry
- Medical Physics Master's final project Supervisor
- Statistics and Numeric Methods

Specialized courses:

- Monte Carlo Simulations Applied to Medical physics
- Python Programming in Research

2018 – 2020

Polytechnic University of Valencia - Department of Computer Systems and Computation

Professor in the following subjects:

- Informatics: Programming in C++ and Python
- Arduino Programming
- Concurrency and Distributed systems
- 3D Modeling

Specialized courses instructor:

- Monte Carlo Simulations Applied to Medical physics

2022 – 2023

European University of Valencia

Professor in the following subjects:

- Thermodynamics
- Electromagnetism
- Cloud Computing and Infrastructure
- Master's final project supervisor