

# Riccardo Ferrara, PhD

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## Table of Skills

Category	Skill	Experience
Languages	English	C2
	French	C2
	Italian	C2
	Spanish	B2
Programming Languages	Python	10 years
	JavaScript	4 years
	HTML & CSS	6 years
	C++	2 years
	R	6 years
	VBA	3 years
	Matlab	4 years
Frameworks & Tools	Django	3 years
	Kubernetes	1 year
	FastAPI	1 year
	Docker	4 years
	GitHub	10 years
Cloud Platforms	AWS	3 years
	Azure	3 years
Databases	MySQL	6 years
	PostgreSQL	2 years
	MongoDB	2 years

AI & Machine Learning	RAG Systems	1 year
	Vector Search & Embeddings	1 year
	LLM Integration	1 year
Teaching	University Courses	6 years
	Coding & Informatics	3 years
FEM Simulations	Ansys Mechanical	5 years
	Ansys CFX	2 years

## Introduction

Curriculum Vitae.  
Breathe my friend: this is a static, black and white curriculum, I have been recruiter too and I know that your eyes may need some rest.  
For a better experience and an always up-to-date CV, if you're reading from a PDF file, you can access the web version by clicking on the link below:  
<https://riccardoferrara.github.io/mycv/cv.html>

## Personal Statement

I am a Full Stack Engineer with a strong backend focus, deeply committed to building applications within the AI and Large Language Model (LLM) landscape. Currently, I design and develop scalable infrastructure for AI services, leveraging my passion for code to solve complex problems. However, my path to this point has been anything but linear. I started with civil engineering, then earned a doctorate in mechanics specializing in vibrations. I even patented a medical device in the field of bioengineering, led a start-up from 0 to 30 employees, winning awards and attracting two large investors. Along the way, I've traveled extensively and held management positions, learning about quality management systems such as ISO, CE marking, and FDA regulations. What ties all of these experiences together is a simple person who has always loved coding, from solving university problems with lines of code to sharing enthusiasm for science and coding. That's why I've focused exclusively on web development in recent years, knowing that the future of computing lies on the web. And I'm happiest when I'm learning something new every day.

## Professional Experience

### Full Stack Developer at Foundever (AI LLMs Team)

11/2024 - Present | Paris (Remote)

In my current role at Foundever, I joined the AI LLMs team as a Full Stack Developer with a strong focus on backend development. I design and develop scalable infrastructure for managing and serving large language models, building robust systems within a Kubernetes-based environment, integrating FastAPI services, vLLM for efficient inference, and S3 storage for model persistence. My primary responsibilities include designing and implementing RESTful APIs for model activation, deactivation, and inference requests, orchestrating model deployments and routing using

Kubernetes namespaces, and ensuring secure authentication mechanisms within a multi-tenant architecture. Additionally, I focus on optimizing model loading strategies, implementing in-memory caching solutions, and conducting performance and resilience testing to guarantee high availability and fault tolerance.

I am one of the core contributors to a centralized Inference Manager service that exposes OpenAI-compatible endpoints for chat, completions, and speech-to-text, and intelligently routes traffic across multiple providers (OpenAI, Azure, AWS, and self-hosted models). In this context I work on provider-agnostic pipelines, PII/PCI policy enforcement, and observability (metrics, tracing, and structured logging) to keep LLM workloads reliable, secure, and debuggable in production.

Another major project I am currently working on is a production-grade RAG (Retrieval-Augmented Generation) system that powers knowledge base management across the AI infrastructure. This system enables semantic search and intelligent document retrieval, combining vector embeddings with traditional keyword search. The architecture leverages Azure Cognitive Search for hybrid search, Azure Blob Storage for document ingestion, and Azure OpenAI for generating text embeddings. At present, I am working on integrating this RAG system with Azure SharePoint to ingest and index enterprise content at scale. The end-to-end document processing flow includes OCR, PII detection, intelligent text chunking, and automated embedding generation. A key focus is multi-tenant data isolation, with automatic client identifier injection for strict data separation. The system includes comprehensive observability with Prometheus metrics for latency and throughput monitoring, and structured JSON logging. Deployment is fully automated with Docker containers orchestrated via Kubernetes and ArgoCD, supporting dev, staging, and production environments with PostgreSQL for persistent metadata storage.

## **Full Stack Lead Developer at Foundever**

10/2022 - 10/2023 | Paris

As the lead developer in a dynamic Scrum/Agile team of 10 talented individuals, I find myself collaborating with colleagues who are scattered across the globe - from France, to China, to Brazil. Despite our geographic distance, we work closely together to ensure that our projects are always on track, with daily communication in both French and English.

At present, our team is focused on managing an impressive 80 e-learning platforms, each of which hosts a staggering total of more than 120,000 users. It's a challenging task, but one that we take on with enthusiasm and a dedication to quality.

As for my day-to-day responsibilities, I spend much of my time writing code in a range of languages, including Python, Javascript, Typescript, HTML, and CSS. Our tech stack is built on a foundation of powerful tools and frameworks, such as Django, Node, React, Vue, and Sass, while our databases of choice are MySQL and MongoDB.

One of the unique aspects of my job is that it is fully remote, allowing me to work from anywhere in the world - yet my home base remains in the beautiful city of Montpellier. It's a privilege to be part of a team that is truly global in scope, and to have the opportunity to contribute to such impactful projects from the comfort of my own home.

## **Web Development Teacher and Manager at Tortuga Coders**

05/2022 - 07/2022 | Thailand

During this exciting period of my career, I had the opportunity to work at a bootcamp for fullstack developers - and not just any bootcamp, but the very same one that I had attended as a student! It was a truly nostalgic experience to be back in that environment, surrounded by the buzz of aspiring coders hard at work.

As it turned out, my previous exposure to the school's curriculum had left me well-equipped for a role as both a teacher and a manager. In my capacity as a teacher, I relished the chance to guide

students through the various phases of their learning journey - from mastering the basics of html and javascript, to diving into more advanced topics like react, express, mongoDB, and mySQL. And as a manager, I was responsible for ensuring that the bootcamp ran like a well-oiled machine. This involved not only handling some of the hiring responsibilities, but also overseeing the on-site accommodation of our students. All in all, it was an incredibly fulfilling experience, and one that allowed me to give back to a community that had given so much to me in the past

## **Freelance Web Developer and Project Manager at Rete Ferroviaria Italiana (and not only)**

11/2022 - Present

As a freelance consultant for RFI, I have had the opportunity to work on a range of exciting projects. Among them, the creation of a Geographic Information System (GIS) to register and visualize information on specific points of interest - including level crossings, railway bridges, and line segments - stands out as particularly captivating. With my expertise in Python, JS, HTML, CSS, and MySQL, I was able to develop the GIS from the ground up, while also leveraging Google APIs to incorporate their cutting-edge mapping and navigation system.

Additionally, I designed and implemented a customized weather alert system for RFI, further enhancing their ability to operate effectively and safely in all conditions. And as a project manager, I was responsible for overseeing the successful integration and customization of a purchase request management system (Arxivar), streamlining the procurement process for RFI's teams.

As a freelancer, I also had the pleasure of working on numerous other projects, primarily websites and e-commerce platforms built on WordPress and then extensively customized using PHP and JS. It was a rewarding experience to see my clients' visions come to life through my technical skills and creativity.

## **Vice President of Product Life Cycle Management & Clinical Education at Sim&Cure**

03/2019 - 10/2020 | France, U.S.A.

In my final chapter at Sim&Cure, I played a key role in the scaling-up of our start-up, which was made possible through a significant external investment. This enabled us to expand our market reach to America, among other things. I personally oversaw the opening of Sim&Cure in the United States, handpicking, training, and building the core team at the company's headquarters in New York. At the same time, I spearheaded a critical project to digitize our quality management system, which not only saved time and improved the quality of our product team but also enhanced traceability through the centralization and interoperability of post-market service data, sales, certifications, and software releases. It was during this chapter that we obtained FDA 510(k) approval to sell in the US.

## **Chief Product Officer at Sim&Cure**

01/2017 - 03/2019 | Montpellier

In this exciting second chapter of my journey with the innovative start-up, Sim&Cure, I delved into the exciting task of product evangelization. I had the pleasure of immersing myself in direct engagement with our user base, while managing the product and making regular visits to nearly 50 endovascular neuroradiology departments situated across the globe.

I took on the role of drafting marketing strategies and coordinating the training of our commercial representatives and application engineers, while also spearheading the implementation of quality management procedures for both the marketing and training department, as well as the clinical validation department.

Moreover, during my time here, I had the distinct privilege of formalizing the patent for our incredible product, Sim&Size. It was an exciting and challenging process, but we eventually obtained the patent, which was a monumental achievement for me, the inventor, and our team. Over the years, we also proudly obtained the CE mark for medical devices (Class IIa, 93/42/CE) and ISO 13485 certification. It has been an exhilarating adventure, and I am eager to see what the future holds for our remarkable start-up.

## **R&D Engineer at Sim&Cure**

10/2015 - 01/2017 | Montpellier

My first chapter at Sim&Cure involved introducing my invention to the company, refining its functionality, and improving the user experience. Additionally, I translated the heart of the algorithm into C++, while simultaneously conducting clinical validations of our medical device. Initially, I performed numerical FEM simulations, which allowed me to calibrate certain parameters of one of our software modules. Later on, in collaboration with the neuroradiology department of the Montpellier hospital, I developed a complete clinical validation protocol. This validation will enable us to obtain the CE marking in the future.

## **Adjunct Professor at University of Montpellier**

2012 - 2017 | Montpellier

In these splendid years, alongside my professional career, I have had the pleasure and honor of delivering lectures to university students in Montpellier and Nîmes in various disciplines. Please refer to the comprehensive list of courses I have taught at the end of this curriculum, In addition you will also find a complete list of my scientific publications. Teaching these courses has not only allowed me to share my expertise and knowledge but has also challenged me to grow and develop as a orator. I am proud to have contributed to the education of the next generation of scholars and look forward to continuing to do so in the future.

## **Postdoctoral Researcher at Irras Technology and University of Montpellier**

04/2015 - 10/2015 | Montpellier

As a postdoctoral researcher, I conducted a study aimed at optimizing intracranial medical devices (IMDs) for the treatment of intracranial aneurysms. Specifically, I evaluated the influence of geometrical parameters of arteries and flow-diverter devices on bloodstream and aneurysm thrombosis. To achieve this, I utilized different mock-up/models to evaluate the pressure drop due to the presence of flow-diverter devices. Additionally, I developed a numerical model that accurately predicts the pressure drop and thrombosis phenomenon in in-vivo cases. This model was calibrated and tested by comparing it to experimental results. The results of this study have the potential to significantly improve the efficacy and safety of IMDs for the treatment of intracranial aneurysms.

## **Inventor**

10/2014 - 04/2015 | Montpellier

Driven by my passion for biomechanics and inspired by my mentor, who directed my recently completed PhD thesis, I became deeply interested in endovascular treatment using flow-diverters for cerebral aneurysms. In the following months, I independently and voluntarily developed an invention that marked the beginning of a thrilling journey: a medical device that can simulate the behavior of prostheses in real-time, based on the patient's scanned images (Cone Beam CT). This invention provides neuroradiologists with the ability to choose the most suitable flow-diverter prosthesis and receive guidance during the procedure. Today I am the named inventor of this

patented invention and I am very proud of it.

For the geeks out there: I developed the entire prototype using Python, leveraging the VTK, ITK, and CTK libraries. To bring the prototype to life, I had to blend my computer science skills with my engineering knowledge, starting from a 3D vectorization of arteries from grayscale images (hounsfield unit voxels), and then creating a mechanical model of prostheses that could be calculated quickly yet accurately (similar to FEM).

## **Lecturer/Researcher at IUT de Nimes**

10/2013 - 10/2014 | Nimes

Shifting perspectives is a powerful experience, and one that I have personally undergone. Having crossed over to the other side of the lecture hall, I find myself continually drawn to the thrill of teaching. I revel in imparting knowledge, crafting metaphors and simplifying complex concepts for my students. The ultimate measure of my success lies in the progress of my pupils.

I had the privilege of teaching at the prestigious Université de Nîmes (Institut Universitaire de Technologie de Nîmes) in the field of civil engineering. My primary focus was on fluid mechanics, covering everything from open-channel flows to pressure-driven flows. However, I also supervised theoretical and laboratory sessions on optics, electrical engineering and computer science. A full list of my courses is available at the end of this document.

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## **Education**

2015, 6th January: **Qualification for Associate Professorship** | France

2013, 21st May:

**PhD in Mechanical and Civil Engineering** | University of Montpellier, University of Reggio Calabria

"A numerical model to predict train induced vibrations and dynamic overloads."

2011, 22nd March: **Second-Level Professional Master in Railway systems and Infrastructure Engineering** | University of Rome "La Sapienza"

2009, 16th April: **Master of Science in Civil Engineering** | University of Palermo

2007, 18th May: **Bachelor of Science in Civil Engineering** | University of Palermo, University of Montpellier

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# List of Academic Courses Taught

Academic Year	Teaching Hours	Course/Exam	University/College	Year of Study	Major/Program	ECTS
2009/2010	12 hours	Road Design	University of Reggio Calabria	III	Civil Engineering	9
2010/2011	12 hours	Road Design	University of Reggio Calabria	III	Civil Engineering	9
2011/2012	24 hours	Rigid Body Mechanics	IUT Nimes	II	Mechanical and Production Engineering	6
2012/2013	21 hours	Rational Mechanics	University of Montpellier	II	Electronics, Electrical Energy and Automation	6
2013/2014	48 hours	Applied Computer Science	IUT of Nimes	I	Civil Engineering	2.5
2013/2014	12 hours	University Study Methods	IUT of Nimes	I	Civil Engineering	1
2013/2014	18 hours	Hydraulic Circuits	IUT of Nimes	I	Civil Engineering	1
2013/2014	78 hours	Hydraulics	IUT of Nimes	I	Civil Engineering	1
2013/2014	32 hours	Acoustic and Visual Comfort	IUT of Nimes	I	Civil Engineering	1
2013/2014	18 hours	Electrotechnics	IUT of Nimes	I	Civil Engineering	1
2013/2014	18 hours	Energetics	IUT of Nimes	I	Civil Engineering	1
2013/2014	6 hours	Interdisciplinary Laboratory on Acoustic and Visual Comfort, and Electrical Engineering	IUT Nimes	II	Civil Engineering	1

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2013/2014	6 hours	Interdisciplinary Laboratory on Acoustic and Visual Comfort, and Energy Engineering	IUT Nimes	II	Civil Engineering	1
2015/2016	10 hours	CAD Design of Mechanical Components	University of Montpellier	II	Mechanical Science and Technology	6
2015/2016	49.5 hours	Rational Mechanics	University of Montpellier	II	Electronics, Electrical Energy and Automation	6
2016/2017	16 hours	Rational Mechanics	University of Montpellier	II	Electronics, Electrical Energy and Automation	6
2017/2018	16 hours	Rational Mechanics	University of Montpellier	II	Electronics, Electrical Energy and Automation	6

## Some Link

- [my patent: the publication](#)
- [my patent: action video](#)
- [list of my scientific publications](#)
- [linkedin profile](#)

## Personal Interests

I always try not to miss a swing dance night. I learned how to dance this wonderful style from the best teachers in Montpellier, and thanks to my old job, I had the opportunity to dance in social swing nights in several cities around the world. When I have the chance, I like to organize a jam session with my friends, playing guitar and singing if I'm feeling inspired. When I'm not dancing or playing music, you might find me playing chess or reading a popular science book about relativity or quantum physics. In the summer, I love to go sailing, maybe in Sicily or Thailand, with a delicious



mango fruit shake in my hand. I enjoy listening to all kinds of music, from classical to pop, rock, metal, jazz, blues, techno, and psy-trance!