

Monica Gruosso

Ph.D., Senior Software Engineer

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SHORT BIO

Senior Software Engineer with a background in Computer Science research and experience in developing and maintaining software applications across different domains.

My professional journey combines academic research in artificial intelligence and computer vision with hands-on software engineering experience, working on backend services, desktop applications, and web-based solutions. I have contributed to both new developments and existing product evolution, mainly using Python and C++.

I enjoy understanding complex systems, solving technical challenges, and learning new technologies. I am particularly interested in frontend development, user interfaces, and software architecture, while continuing to grow as a hands-on technical professional.

WORKING EXPERIENCE

Senior Software Engineer

Randstad Digital – Consultant at Thales Italy

SEPTEMBER 2024 - now

Software Engineer working on the development and evolution of software applications for industrial systems.

Main activities include the design and implementation of backend services, REST APIs, desktop applications, and web-based monitoring tools. I contribute to both new development projects and the maintenance and improvement of existing software products, including legacy applications.

Projects and activities include:

- Development of a monitoring tool prototype using Python, Django, and Vue.js
- Development of internal desktop applications using Python and Qt
- Implementation and maintenance of web interfaces for device monitoring using Vue.js
- Bug fixing and evolution of legacy software applications
- Collaboration on technical analysis, implementation, and documentation activities

Technologies: Python, Django, Vue.js, Qt, MATLAB, REST APIs, Delphi, Linux, Windows

Software Engineer

e-Novia S.p.A.

NOVEMBER 2021 - SEPTEMBER 2024

Software Engineer involved in R&D and industrial software projects across different application domains, including automotive, computer vision, and intelligent systems.

I worked on the development, maintenance, and evolution of existing software products, as well as on new technology-oriented projects. Activities included software implementation, debugging, feature development, technical analysis, testing, and documentation.

Main experiences:

- Development and maintenance of automotive software solutions using C++, Python, ROS
- Implementation of new features and bug fixing on existing software products
- Development of computer vision and deep learning solutions for image analysis using Python and TensorFlow
- Contribution to software architecture analysis, requirements definition, technical documentation, and prototyping activities

Technologies: C++, Python, ROS, TensorFlow, Qt/QML, MQTT, Linux, Git

EDUCATION

Ph.D. in Mathematics and Computer Science

University of Basilicata (in consortium with University of Salento)

NOVEMBER 2018 - NOVEMBER 2021

Research on deep learning and computer vision, with focus on human segmentation using convolutional neural networks. Thesis: "Human Segmentation with Deep Convolutional Neural Networks" (grade: excellent)

Master's Degree in Computer Engineering and Information Technologies (LM-32)

University of Basilicata

OCTOBER 2015 - JULY 2018

Deep Learning for the Chroma Key simulation (Graduated with honors)

Bachelor's Degree in Computer Sciences and Technologies (L-31)

University of Basilicata

OCTOBER 2011 - JUNE 2015

Statistical photography - statistical approach to background subtraction (Graduated with honors)

OTHER COURSES

Course on DLgs 231/2001

e-Novia S.p.A.

NOVEMBER 2022

Introduction to Legislative Decree 231/2001; General concepts and related offenses; The organizational model: approach and application; Focus on the latest regulatory changes introduced in crime families; Practical application in e-Novia

Corporate security course (Decree 81)

e-Novia S.p.A.

MARCH 2022

Training Course "24 CFU"

University of Basilicata

JUNE 2021 - JULY 2021

Cultural Anthropology, Special Pedagogy and Didactics, General Pedagogy, General Psychology

Cisco CCNA Routing & Switching

University of Basilicata

2015 - 2016

Courses organized by Cisco Networking Academy

LANGUAGES

Italian: Mother tongue

English: Professional knowledge

Spanish: Limited working knowledge

TECHNICAL SKILLS

Programming languages: Python, C++, C#, MATLAB, SQL, Java

Frameworks & Technologies: Django, Vue.js, Qt/QML, ROS, TensorFlow, Keras, OpenCV

Software Engineering: OOP, Design Patterns, MVC, Refactoring, Debugging, Testing, Documentation

Development Tools & Version Control: Git, GitHub, GitLab, Bitbucket, PyCharm, VS Code, Microsoft Visual Studio

Operating systems: Windows; Linux; Android

SOFT SKILLS

Problem solving and analytical thinking: ability to analyze complex technical problems, identify possible solutions, and approach challenges with a structured mindset

Adaptability and fast learning: ability to quickly understand new technologies, tools, and existing software systems

Autonomy and ownership: ability to independently manage tasks, define priorities, and deliver solutions while collaborating with the team

Team collaboration: experience working in multidisciplinary teams, sharing knowledge, discussing technical decisions, and contributing constructively to projects

Attention to detail and software quality: commitment to writing reliable code, improving existing solutions, and maintaining high-quality standards

Research-oriented mindset: curiosity, critical thinking, and continuous improvement attitude developed through academic research and professional experience

SELECTED PUBLICATIONS

- M. Sileo, N. Capece, M. Gruosso, M. Nigro, D. Bloisi, F. Pierri, and U. Erra, "[Vision-enhanced Peg-in-Hole for Automotive Body Parts using Semantic Image Segmentation and Object Detection](#)", *Engineering Applications of Artificial Intelligence*, 2024
- M. Gruosso, N. Capece, and U. Erra, "[Egocentric Upper Limb Segmentation in Unconstrained Real-Life Scenarios](#)," *Virtual Reality*, 2022
- M. Gruosso, N. Capece, and U. Erra, "[Solid and Effective Upper Limb Segmentation in Egocentric Vision](#)," in *2021 ACM 26th International Conference on 3D Web Technology (WEB3D)*
- M. Gruosso, N. Capece, and U. Erra, "[Human Segmentation in Surveillance Video with Deep Learning](#)," *Multimedia Tools and Applications*, 2020

Full publication list available on LinkedIn / Google Scholar

AWARDS

- **Best Presentation Award**, 3rd IEEE International Conference on Artificial Intelligence and Virtual Reality, 2020
- **Best Paper Award**, 10th IEEE International Conference of Cognitive Infocommunications, 2019
- **2nd place for Ph.D. students of Leonardo Innovation Award 2018**, 2018

SELECTED CERTIFICATIONS

- "DeepLearning.AI TensorFlow Developer" specialization by deeplearning.ai on Coursera, 11/08/2022
- "Python for Data Science" by IBM on Coursera, 03/02/2019
- "Deep Learning" specialization by deeplearning.ai on Coursera, 02/13/2019

Full list available on LinkedIn

TEACHING ACTIVITY

Teaching assistant activities in programming and algorithms courses at University of Basilicata.
Supervision of bachelor's and master's theses in computer science topics.

AUTHORIZATION FOR THE TREATMENT OF PERSONAL DATA

I hereby authorize the use of my personal data under the GDPR 679/16 - "European regulation on the protection of personal data".