Monica Gruosso

Ph.D., Deep Learning and Software Engineer

Sesto San Giovanni, Milan, Italy
(+39) 3801937663
gruosso.monica@gmail.com
LinkedIn: monicagruosso
Web: https://gruossomonica.github.io/

SHORT BIO

I am a Software Engineer with a strong passion for programming and continuous learning. My primary interests are in the fields of artificial intelligence, with a particular focus on deep learning for image analysis, computer vision, and autonomous driving vehicles.

My professional background encompasses extensive experience in research and analysis of current technologies, requirements gathering, data collection, software design, and implementation utilizing both traditional and deep learning techniques. Additionally, I have expertise in testing, debugging, and producing comprehensive documentation.

WORKING EXPERIENCE

Software Engineer

e-Novia S.p.A.

NOVEMBER 2021 - now

As part of the software team of e-Novia, I support both startups of the e-Novia group and external clients in different sectors. I deal with various projects and technologies, such as innovation and R&D projects, software development based on traditional and deep learning techniques, testing, and documentation production.

Skills: C++, ROS, Qt/QML, C#, Python, TensorFlow, Visual Studio, VS Code, mongoDB, MQTT, BusMaster, Candb++, bash, Nvidia boards, Raspberry pi, Ubuntu, Windows, git, BitBucket, confluence, anaconda

EDUCATION

Ph.D. in Mathematics and Computer Science

University of Basilicata (in consortium with University of Salento)

NOVEMBER 2018 - NOVEMBER 2021

Human Segmentation with Deep Convolutional Neural Networks (grade: excellent)

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

University of Basilicata

AUGUST 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

AUGUST 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

DIGITAL SKILLS

General knowledge: Procedural and object-oriented programming; Android programming; 3D graphics (basic level); Client-server programming (basic level); Refactoring and regression testing; Network infrastructure, networking, and troubleshooting; Deep Learning; MVC and design pattern; Databases and object-relational DBMS (e.g., PostgreSQL)

Programming languages: Python; C/C++; C#; MATLAB; Java; Kotlin

Applications and software: Microsoft Visual Studio; Visual Studio Code; MATLAB; Microsoft Office; NetBeans; Candb++; Android Studio; Cisco Packet Tracer; PostgreSQL; Sql Server Management Studio

Framework and libraries: TensorFlow; Keras; Caffe; OpenCV; NumPy; Matplotlib; ROS; Qt/QML; Java Server Faces; Hibernate; JUnit

Markup languages and file formats: JSON; LaTeX; Markdeep/Markdown; HTML; CSS; XML; bash

Code versioning: git; GitHub; BitBucket

Operating systems: Windows; Ubuntu (desktop, Nvidia boards, Raspberry); Android

CMS: WordPress

PERSONAL, ORGANIZATIONAL, AND RELATIONAL SKILLS

Independence: Self-management and autonomous definition of deadlines and tasks.

Planning: Ability to draw up detailed activity plans to be carried out daily and coordinated with colleagues, punctuality, and compliance with deadlines.

Problem-solving: Ability to analyze and decompose complex problems, looking for correlations between objects, identifying critical issues and possible solutions.

Stress resistance: Ability to react to stressful situations, trying to face everything with calm and rationality, staying focused on priorities, and avoiding transmitting anxieties to others.

Team working: Ability to work productively and in harmony with colleagues, exchanging ideas and managing any conflicts, respecting different people and points of view thanks to open-mindedness and empathy.

Communication: Excellent written and verbal communication skills acquired in multiple languages, which allow good listening skills, personal re-elaboration of contents, clear exposure, public speaking, and writing correct and easy-to-read texts.

Precision: Attention to detail and ability to maintain a high level of concentration.

Flexibility: Management of different situations and ability to adapt to change, reorganizing work and priorities.

Research: Ability to search for solutions, critical thinking, and the desire to investigate and improve oneself.

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*
- G. Manfredi, N. Capece, U. Erra, and M. Gruosso, “TreeSketchNet: From Sketch To 3D Tree Parameters Generation”, *ACM Transactions on Intelligent Systems and Technology*, 2023
- 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, “Exploring Upper Limb Segmentation with Deep Learning for Augmented Virtuality,” in *2021 Smart Tools and Applications in Graphics Annual International Conference (STAG)*
- N. Capece, M. Gruosso, U. Erra, R. Catena, and G. Manfredi, "A Preliminary Investigation on a Multimodal Controller and Freehand based Interaction in Virtual Reality," in *2021 International Conference on Augmented Reality, Virtual Reality and Computer Graphics (AVR)*
- M. Gruosso, N. Capece, U. Erra, and F. Biancospino, ”A Validation Approach for Deep Reinforcement Learning of a Robotic Arm in a 3D Simulated Environment," in *2021 IEEE 19th World Symposium on Applied Machine Intelligence and Informatics (SAMI)*
- M. Gruosso, N. Capece, U. Erra, F. Angiolillo, “A Preliminary Investigation into a Deep Learning Implementation for Hand Tracking on Mobile Devices," in *2020 IEEE International Conference on Artificial Intelligence and Virtual Reality (AIVR)*
- N. Capece, U. Erra, M. Gruosso, and M. Anastasio, "Archaeo Puzzle: An Educational Game Using Natural UserInterface for Historical Artifacts," in *2020 18th Eurographics Workshop on Graphics and Cultural Heritage (EG GCH2020)*, November 18-19, 2020
- M. Gruosso, N. Capece, and U. Erra, "Human Segmentation in Surveillance Video with Deep Learning," *Multimedia Tools and Applications, 2020*
- M. Gruosso, N. Capece, U. Erra, and N. Lopardo, "A Deep Learning approach for the Motion Picture Content Rating," in *2019 10th IEEE International Conference on Cognitive Infocommunications (CogInfoCom)*, Naples, Italy, pp. 137-142, 2019

PREPRINTS

- N. Capece, U. Erra, D. Malandrino, M. M. North, and M. Gruosso, “Evaluation of Virtual Reality Interaction Techniques for 3D Graph Exploration”

HONORS AND 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

CONFERENCES AND SEMINARS

- 26th International Conference on 3D Web Technology (WEB3D), 11/8/2021 - 11/12/2021, online event
- Annual International Conference “Smart Tools and Applications in Graphics” (STAG), 10/28/2021 - 10/29/2021, online event
- Guest Lecture: Image Processing using Convolutional Neural Networks, 28/09/2021, Sam Ratulangi University, Manado, Indonesia (online event)
- 19th IEEE World Symposium on Applied Machine Intelligence and Informatics (SAMI 2021), 01/21/2021 - 01/23/2021, online event

- 3rd IEEE International Conference on Artificial Intelligence and Virtual Reality (AIVR 2020), 12/14/2020 - 12/18/2020, online event
- Seminar entitled “Convolutional neural networks for image analysis”, 01/15/2020, University of Basilicata, Potenza, Italy
- 10th IEEE International Conference on Cognitive Infocommunications (CogInfoCom 2019), 10/23/2019 - 10/25/2019, Naples, Italy
- 2nd Advanced Course on Data Science & Machine Learning (ACDL 2019), 07/15/2019 - 07/19/2019, Certosa di Pontignano (Siena), Italy
- Deep Learning for Artificial and Physical Intelligence, 06/28/2019, IIASS, Vietri sul Mare (SA), Italy

CERTIFICATIONS

- “Kotlin for Java Developers” on Coursera, 01/10/2024
- “DeepLearning.AI TensorFlow Developer”, a 5-course specialization by deeplearning.ai on Coursera, 11/08/2022. It also includes the certificates for the following five courses: Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning; Convolutional Neural Networks in TensorFlow; Natural Language Processing in TensorFlow; Sequences, Time Series and Prediction.
- Certified Publons Academy Peer Reviewer, 03/02/2021
- "Inferential Statistics" by the Duke University on Coursera, 07/05/2019
- "Open Source tools for Data Science" by IBM on Coursera, 03/03/2019
- "Data Visualization with Python" by IBM on Coursera, 03/02/2019
- "Data Analysis with Python" by IBM on Coursera, 03/02/2019
- "Python for Data Science" by IBM on Coursera, 03/02/2019
- "Deep Learning", a 5-course specialization by deeplearning.ai on Coursera, 02/13/2019. It also includes the certificates for the following five courses: Neural Network and Deep Learning; Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization; Structuring Machine Learning Projects; Convolutional Neural Networks; Sequence Models
- "Deep Learning Onramp" by Mathworks, 01/19/2018

TEACHING ACTIVITY

Lessons

- Procedural programming and problem-solving integrative lessons, "P. P. Pasolini" Scientific High School, Potenza, Italy, 2019-2020
- Laboratory lessons at the Algorithms and Data Structures course, University of Basilicata, Potenza, Italy, 2019-2020

Co-supervisor of degree thesis

- Bachelor's Thesis in Computer Science and Technologies, “Study of the WebRTC protocol for the development of a P2P webchat”, 2021
- Bachelor's Thesis in Computer Science and Technologies, “Development of a hand tracking system based on an RGB camera”, 2021

- Master's Thesis in Computer Engineering and Information Technologies, "Analysis, Study, and Migration in Android of a Convolutional Neural Network for real-time hand tracking", 2020
- Bachelor's Thesis in Computer Science and Technologies, "Gender classification in real-time through Neural Network", 2019
- Bachelor's Thesis in Computer Science and Technologies, "Deep Learning for the training of a robotic manipulator in a simulated environment", 2019
- Bachelor's Thesis in Computer Science and Technologies, "Violence Detection with the use of Deep Learning", 2019

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".