

EUROPEAN
CURRICULUM VITAE
FORMAT



PERSONAL INFORMATION

Name **ROCCO DE CIANTIS**
LinkedIn <https://www.linkedin.com/in/rocco-de-ciantis-254a052ab/>
GitHub <https://github.com/lawl2>
Email **rocco.deciantis2@unibo.it**
Nationality Italian

WORK EXPERIENCE & TRAINING

- Dates (from – to) **November 1, 2024 – Ongoing**
• Name and address of employer Alma Mater Studiorum Università di Bologna– DIN – Bologna (BO), Italy
• Type of company or industry Research Laboratory
• Type of use **PhD student**
• Main duties and responsibilities Project: Study of Artificial Intelligence algorithms for the development of Adaptive Interfaces in VR, AR, XR within the context of Industry 5.0.
Use Cases:
 - Baker-Hughes case study derived from European project “HE DaCapo”
- Dates (from – to) **May 16, 2024 – October 31, 2024**
• Name and address of employer Università degli Studi di Modena e Reggio Emilia – Engineering Dept. – XiLab, Modena (MO), Italy
• Type of company or industry Research Laboratory
• Type of use **Research Fellow**
• Main duties and responsibilities Project: Design of tools to support sustainable manufacturing processes based on Augmented Reality, as part of the “HE DaCapo (Digital assets and tools for circular value chains and manufacturing products)” project
Activities: Extraction of edges of the framed image using Computer Vision algorithms using the OpenCV library, creation of masks using the CAD model and comparison of the edges between the superimposed CAD model and the image given by Computer Vision to identify discrepancies areas, definition of an operational methodology and its technological implementation, definition of image analysis metrics for compliancy check, extension of method the method to check the presence of features of mechanical components.
Acquired skills: Study and application of Computer Vision algorithms, development of applications in .NET environment in C#, development of application in Windows Form .NET, skills in the development of applications with the use of the Unity Engine, use of the Vuforia

Engine, study and in-depth study of Augmented Reality technology and Computer Graphics, use of Computer Vision and numeric libraries as Open CV and Numpy for image analysis.

- Dates (from – to)
- Name and address of employer
 - Type of company or industry
 - Type of use
- Main duties and responsibilities

October 27, 2023 – March 26, 2024

Università degli Studi di Modena e Reggio Emilia – Engineering Dept. – XiLab, Modena (MO), Italy

Research Laboratory

Internship Trainee

Project: Development of a prototypal application for demonstration of Augmented Reality potentials for feature extraction in manufacturing Quality Control problems

Activities: Extraction of edges of the framed image using Computer Vision algorithms using the OpenCV library, creation of masks using the CAD model and comparison of the edges between the superimposed CAD model and the image given by Computer Vision to identify discrepancies areas, definition of an operational methodology and its technological implementation

Acquired skills: Study and application of Computer Vision algorithms, development of applications in .NET environment in C#, skills in the development of applications with the use of the Unity Engine, use of the Vuforia Engine, study and in-depth study of augmented reality technology and Computer Graphics

- Dates (from – to)
- Name and address of employer
 - Type of company or industry
 - Type of use
- Main duties and responsibilities

March 8, 2019 – September 23, 2019

Università degli Studi di Siena – Computer Engineering and Mathematics Dept., SirsLAB, Siena (SI), Italy

Research Laboratory

Internship Trainee

Project: Development of a bidirectional communication system for controlling a 3D-printed robotic gripper and studies about machine learning architectures for collaborative robotics.

Activities: Study of different grippers architecture, learning techniques and client-server communication algorithms

Acquired skills: Matlab, Arduino, Xbee communication protocol

EDUCATION

- Dates (from – to)
- Name and type of education or training institution
- Main subjects/professional skills covered by the study

2024 - Ongoing

PhD student in DIMSAI program (ING-IND/15), DIN, Alma Mater Studiorum Università di Bologna, Bologna (BO), Italy

Study of theoretical aspects of artificial intelligence applied over Industry 5.0. Exploring how AI algorithms may interface with UX in VR, AR and XR simulations. In particular the PhD is focusing on the study of Artificial Intelligence algorithms for the development of Adaptive Interfaces in VR, AR, XR within the context of Industry 5.0, with many use cases derived from previous work experience at UNIMORE.

- Dates (from – to)
- Name and type of education or training institution
- Main subjects/professional skills covered by the study

2020 - 2023

M. Sc. in Computer Engineering - Artificial Intelligence Engineering (LM-32), Engineering Dept. "E. Ferrari", UNIMORE, Modena (MO), Italy

Study of theoretical aspects of artificial intelligence, as well as the engineering aspects relating to the creation of future generations of intelligent systems. Acquired skills in machine learning, deep learning, artificial vision and cognitive systems. Design of robotic systems, IoT systems and in-depth analysis of distributed agent systems. M. Sc. thesis with the name: **Study of a system based on Augmented Reality to support the control of industrial products** aims at providing a specific support functionality during quality check tasks, proposing a methodological approach and the relative technological implementation to develop a prototype application integrating Augmented Reality with Computer Vision algorithms, with the ultimate objective of projecting virtual elements into the real world. Particularly, the proposed approach has been applied to a relevant industrial use case Baker Hughes, involving a quality control of an item of an Oil&Gas ventilation duct.

- Qualification achieved
- Level in the national classification
 - Exams

- Name and type of education or training institution
- Main subjects/professional skills covered by the study

- Qualification achieved
- Level in the national classification
 - Exams

- Name and type of education or training institution
- Qualification achieved
- Level in the national classification

PERSONAL SKILLS AND COMPETENCIES

MOTHER TONGUE

OTHER LANGUAGE

- Reading skills
- Writing skills
- Oral expression skills

- Reading skills
- Writing skills
- Oral expression skills

INTERPERSONAL SKILLS AND COMPETENCIES

M. Sc. in Computer Engineering – Artificial Intelligence Engineering

110/110 cum laude

Machine Learning and Deep Learning, IOT and 3D Intelligent Systems, Computer Vision and Cognitive Systems, Big Data Analysis, Progettazione del Software, Metodi Matematici per il Machine Learning, User Experience Design, Informatica Industriale, Tecnologie di Infrastrutture di Reti, Distributed Artificial Intelligence, Smart Robotics, Automotive Connectivity

B.Sc. in Computer Engineering (L-8), Computer Engineering and Mathematics Dept., Università degli Studi di Siena, Siena (SI), Italy

Design and implementation of software applications. Acquired skills in programming, algorithms and data structures, database design, operating systems, computer architecture and software engineering. B. Sc thesis with the name: **Development of a bidirectional communication system for controlling a 3D-printed robotic gripper** presents a way to create a wireless bidirectional communication system for 3D printed robotic hands to support the creation of robots which can learn from humans, understand and execute human tasks as well as humans.

B. Sc. in Computer Engineering

91/110

Analisi Matematica I, Analisi Matematica II, Fisica I, Fondamenti di Informatica, Probabilità e Statistica, Architettura dei Calcolatori, Elettrotecnica, Programmazione e Progettazione del Software, Fisica II, Elettronica, Controllo Digitale, Sistemi di Controllo, Fondamenti di Telecomunicazioni, Robotica, Ricerca Operativa, Laboratorio di Misure Elettroniche, Sistemi Dinamici, Algebra Lineare, Fondamenti di Programmazione, Campi Elettromagnetici, Economia ed Organizzazione Aziendale

High School degree Liceo Scientifico “L. Da Vinci”, Sora (FR), Italy

High School diploma

100/100

ITALIAN

ENGLISH

B2

B2

B2

FRENCH

A2

A2

A2

WORK SKILLS: TEAMWORK, COLLABORATIVE WORKING AND PROBLEM-SOLVING ABILITIES

ACQUIRED DURING TEAMWORK PROJECTS AND INTERNSHIP TRAINEES DURING UNIVERSITY COURSES

ORGANIZATIONAL SKILLS AND
COMPETENCIES

PERSONAL SKILLS: DETERMINED, OPEN MIND, CURIOUS, EXCITED TO LEARN

TEAMWORK DURING ACADEMIC PROJECTS LET ME TO DEVELOP AN HIGH SENSE OF ORGANIZATION AND ABILITY TO ADMINISTRATE ROLES IN SPECIFIC PROJECTS

TECHNICAL SKILLS AND
COMPETENCIES

PYTHON LANGUAGE: OPENCV, PYTORCH, TENSORFLOW, KERAS, NUMPY, PANDAS, SCIKIT-LEARN, FLASK, MATPLOTLIB, SEABORN

.NET ENVIRONMENT: C#, OPENCVSHARP, PYTHON.NET, NUMSHARP, WINDOWS FORM

WEB DESIGN & DEVELOPMENT: HTML, CSS, JAVASCRIPT, UI DESIGN

OTHERS: C, C++, JAVA, UNITY ENGINE, VUFORIA ENGINE, UX DESIGN, MATLAB, ROS, ADOBE PHOTOSHOP, LATEX, ARDUINO, NETLOGO, LINUX

OPERATING SYSTEMS: WINDOWS, UBUNTU, FEDORA

SOFTWARE: VISUAL STUDIO, VISUAL STUDIO CODE, PYCHARM, ECLIPSE, JUPITER NOTEBOOKS, COLAB, UNITY, ADOBE PHOTOSHOP, ADOBE LIGHTROOM

ALL ACQUIRED DURING UNIVERSITY COURSES

ATTITUDE FOR SCIENTIFIC
RESEARCH

DURING ACADEMIC YEARS I DEVELOPED SEVERAL EXPERIMENTAL PROJECTS INVOLVING DIFFERENT AREAS SHOWING MY STRONG PASSION AND CAPABILITY TO WORK IN RESEARCH PROJECTS:

RESEARCH ACTIVITY DURING THE INTERNSHIP TRAINEE AT SIRSLAB INVOLVING THE DEVELOPMENT AND STUDY OF A SYSTEM FOR BIDIRECTIONAL COMMUNICATION FOR A EXPERIMENTAL 3D PRINTED ROBOTIC GRIPPER,

RESEARCH ACTIVITY DURING THE INTERNSHIP TRAINEE AT XILAB INVOLVING THE DEVELOPMENT OF PROTOTYPE APPLICATION INTEGRATING AUGMENTED REALITY WITH COMPUTER VISION ALGORITHMS, WITH THE ULTIMATE OBJECTIVE OF PROJECTING VIRTUAL ELEMENTS INTO THE REAL WORLD. THE FRAMED PRODUCT WILL THEN BE COMPARED WITH THE RELATED SUPERIMPOSED CAD MODEL. SPECIFICALLY, THE APPROACH FORESEES THE RENDERIZATION BY MEAN OF AD HOC COMPUTER GRAPHICS SHADERS OF THE FRAMED EDGES OF THE CONSIDERED AUGMENTED GEOMETRY TO BE USED AS A REFERENCE FOR OPENCV EDGE DETECTORS. GEOMETRICAL MISMATCHES BETWEEN THE INFORMATION PROVIDED BY MEAN OF EDGE DETECTORS ANALYSING CAMERA FRAMES AND THE SUPERIMPOSED CAD MODEL ARE THEN IDENTIFIED.

ACADEMIC PROJECTS:

COMPUTER VISION AND COGNITIVE SYSTEM ARCHITECTURE FOR OBJECT DETECTION AND INSTANCE SEGMENTATION USING SYNTHETICAL DATA

TAKE-CARE: DEVELOPMENT OF AN IOT SYSTEM TO CONTROL SENSIBLE MATERIAL TRANSPORT

SIMULATION OF A MOBILE AUTONOMOUS ROBOT FOR SENSIBLE MATERIAL TRANSPORT

SIMULATION OF DIGITAL PHEROMONES SYSTEM FOR SWARMING VEHICLE CONTROL

RESEARCH PROJECTS

PARTICIPATION TO THE EUROPEAN PROJECT **"HE DACAPo – DIGITAL ASSETS AND TOOLS FOR CIRCULAR VALUE CHAINS AND MANUFACTURING PRODUCTS"** AS A PART OF **"HORIZON EUROPE"** PROGRAM IN PARTNERSHIP WITH UNIMORE

ARTISTIC SKILLS AND
COMPETENCIES

WRITER, DRAWER, HAIKU WRITER, ORIGAMI LOVER, BONSAI CURATOR, ORCHIDS CURATOR, SELF-TAUGHT GUITARIST

DRIVER'S LICENSE(S)

B1

ACADEMIC ACTIVITIES

WORKSHOP AND CONFERENCES
JULY 7, 20 AND 31, 2023

Participation to the Short Master "**Corso XR Unity: progettare ambienti ed Interfacce in realtà virtuale ed aumentata**" at **Virtual Prototyping Lab**
Tecnopolo of Modena, Via Vivarelli 10, 41125 Modena

ATTACHMENTS

Exam list of Bachelor's degree
Exam list of Master's degree
Master's degree thesis
Bachelor's degree thesis

Il sottoscritto dichiara di essere informato, ai sensi del d.lgs. n.196/2003, che i dati personali raccolti saranno trattati anche con strumenti informatici esclusivamente

nell'ambito del procedimento per il quale la presente dichiarazione viene resa.

Il sottoscritto Rocco De Ciantis nato a Sora (FR) il 17/08/1991 avente codice fiscale DCNRCC91M17I838E residente a Sora (FR) in via Cocorbite snc,

sotto la propria responsabilità ed in piena conoscenza della responsabilità penale prevista per le dichiarazioni false dall'art. 76 del D.P.R. 445/2000 e dalle disposizioni del

codice penale e dalle leggi speciali in materia ai sensi degli articoli 46 e 47 del D.P.R. 445/2000 DICHIARA che tutte le informazioni riportate sul curriculum vitae

corrispondono al vero.

Luogo e data

Modena, 13/06/2024

Il dichiarante

Handwritten signature of Rocco De Ciantis in black ink.